

GA-K8N51GMF-9

AMD Socket 939 Processor Motherboard

User's Manual

Rev. 1004

12ME-51GMF9-1004R



* The WEEE marking on the product indicates this product must not be disposed of with user's other household waste and must be handed over to a designated collection point for the recycling of waste electrical and electronic equipment!!



* The WEEE marking applies only in European Union's member states.

Declaration of Conformity

G.B.T. Technology, Inc.
The Manufacturer/Importer
Ausselshager Weg 41, P.O. 20327 Hamburg, Germany

(description of the apparatus, system, installation to which it refers)
I, the undersigned, declare that the product
GA-K8N51GMF-9
Motherboard
is in conformity with conformity is declared)
(reference to the specification with which conformity is declared)
in accordance with 90/269 EEC EMC Directive

- | | | | |
|--|---|--|---|
| <input type="checkbox"/> EN 55011 | Limits and methods of measurement of radio disturbance characteristics of industrial, scientific and medical (ISM) high frequency equipment | <input checked="" type="checkbox"/> EN 61000-3-2 | Disturbances in supply systems caused by household appliances and similar electrical equipment. Voltage fluctuations* |
| <input type="checkbox"/> EN 55013 | Limits and methods of measurement of radio disturbance characteristics of equipment | <input checked="" type="checkbox"/> EN 55024 | Information Technology equipment immunity requirements |
| <input type="checkbox"/> EN 55014-1 | Limits and methods of measurement of radio disturbance characteristics of portable tools and similar electrical apparatus | <input type="checkbox"/> EN 50082-1 | Generic immunity standard Part 1: Radiated, commercial and light industry |
| <input type="checkbox"/> EN 55015 | Limits and methods of measurement of radio disturbance characteristics of fluorescent lamps and luminaires | <input type="checkbox"/> EN 50082-2 | Generic immunity standard Part 2: Industrial environment |
| <input type="checkbox"/> EN 55020 | Immunity from radio interference of equipment | <input type="checkbox"/> EN 55014-2 | Immunity requirements for household appliances tools and similar apparatus |
| <input checked="" type="checkbox"/> EN 55022 | Limits and methods of measurement of radio disturbance characteristics of information technology equipment | <input type="checkbox"/> EN 50091-2 | EMC requirements for uninterruptible power systems (UPS) |
| <input type="checkbox"/> EN VDE 0855 Part 1 | Cabled distribution systems. Equipment | | |
| <input type="checkbox"/> Part 12 | Sound and television signals | | |
| <input checked="" type="checkbox"/> CE marking | | | |
| <input type="checkbox"/> EN 60085 | Safety requirements for mains operated household and similar general use electrical appliances | <input type="checkbox"/> EN 60950 | Safety for information technology equipment including electrical business equipment |
| <input type="checkbox"/> EN 60335 | Safety of household and similar electrical appliances | <input type="checkbox"/> EN 50091-1 | General and Safety requirements for uninterruptible power systems (UPS) |



The manufacturer/Importer declares the conformity of above standard product with the actual required safety standards in accordance with LVD 73/23 EEC

(Stamp)

Date: Sept. 29, 2005

Signature: Timmy Huang
Name: Timmy Huang

Manufacturer/Importer

DECLARATION OF CONFORMITY

Per FCC Part 2, Section 2.1077(a)



Responsible Party Name: G.B.T. INC. (U.S.A.)

Address: 17358 Railroad Street

City of Industry, CA 91748

Phone/Fax No: (818) 854-9338 / (818) 854-9339

hereby declares that the product

Product Name: **Motherboard**

Model Number: GA-K8N51GMF-9

Conforms to the following specifications:

FCC Part 15, Subpart B, Section 15.107(a) and Section 15.109 (a), Class B Digital Device

Supplementary Information:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful and (2) this device must accept any interference received, including that may cause undesired operation.

Representative Person's Name: ERIC LU

Signature: Eric Lu

Date: Sept. 29, 2005

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Product Manual Classification

In order to assist in the use of this product, Gigabyte has categorized the user manual in the following:

- For detailed product information and specifications, please carefully read the "Product User Manual".

- For detailed information related to Gigabyte's unique features, please go to the "Technology Guide" section on Gigabyte's website to read or download the information you need.

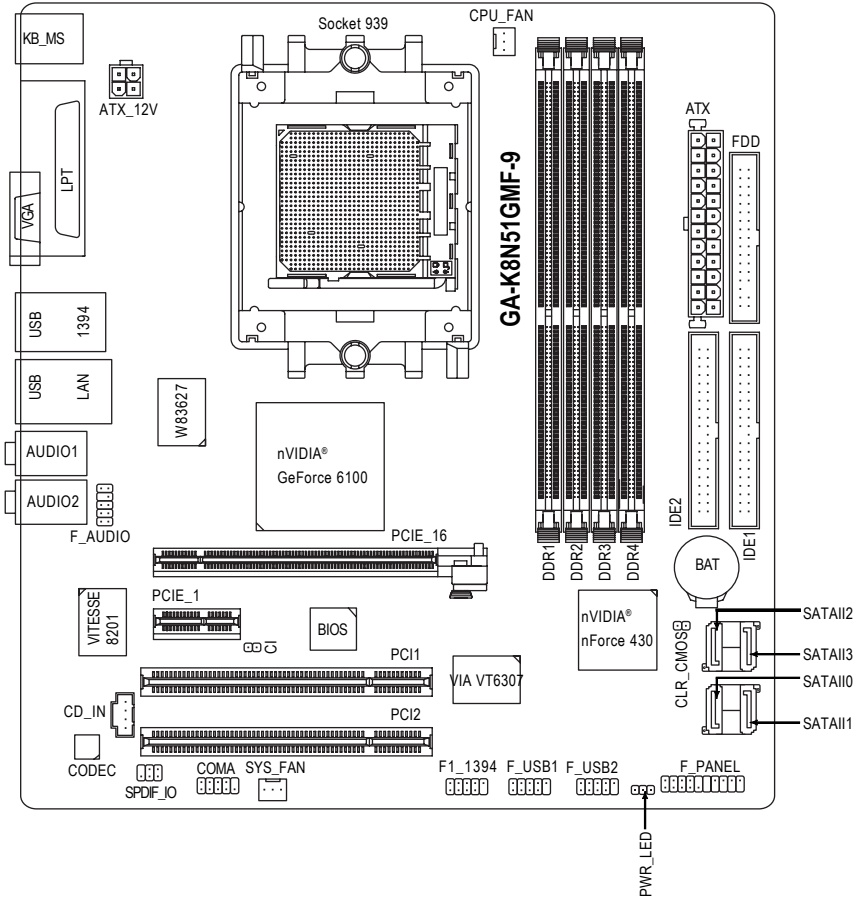
For more product details, please click onto Gigabyte's website at www.gigabyte.com.tw

Table of Contents

GA-K8N51GMF-9 Motherboard Layout	6
Block Diagram	7
Chapter 1 Hardware Installation	9
1-1 Considerations Prior to Installation	9
1-2 Feature Summary	10
1-3 Installation of the CPU and Fan Heat Sink	12
1-3-1 Installation of the CPU	12
1-3-2 Installation of the Fan Heat Sink	13
1-4 Installation of Memory	14
1-5 Installation of Expansion Cards	16
1-6 I/O Back Panel Introduction	17
1-7 Connectors Introduction	18
Chapter 2 BIOS Setup	29
The Main Menu (For example: BIOS Ver. : F1g)	30
2-1 Standard CMOS Features	32
2-2 Advanced BIOS Features	34
2-3 Integrated Peripherals	36
2-4 Power Management Setup	39
2-5 PnP/PCI Configurations	41
2-6 PC Health Status	42
2-7 Frequency/Voltage Control	43
2-8 Load Fail-Safe Defaults	44
2-9 Load Optimized Defaults	44
2-10 Set Supervisor/User Password	45
2-11 Save & Exit Setup	46
2-12 Exit Without Saving	46

Chapter 3 Drivers Installation	47
3-1 Install Chipset Drivers	47
3-2 Software Application	48
3-3 Software Information	48
3-4 Hardware Information	49
3-5 Contact Us	49
 Chapter 4 Appendix	 51
4-1 Unique Software Utilities	51
4-1-1 EasyTune 5 Introduction	51
4-1-2 Xpress Recovery Introduction	52
4-1-3 Flash BIOS Method Introduction	55
4-1-4 Serial ATA BIOS Setting Utility Introduction	64
4-1-5 2- / 4- / 6- / 8- Channel Audio Function Introduction	70
4-2 Troubleshooting	75

GA-K8N51GMF-9 Motherboard Layout



Chapter 1 Hardware Installation

1-1 Considerations Prior to Installation

Preparing Your Computer

The motherboard contains numerous delicate electronic circuits and components which can become damaged as a result of electrostatic discharge (ESD). Thus, prior to installation, please follow the instructions below:

1. Please turn off the computer and unplug its power cord.
2. When handling the motherboard, avoid touching any metal leads or connectors.
3. It is best to wear an electrostatic discharge (ESD) cuff when handling electronic components (CPU, RAM).
4. Prior to installing the electronic components, please have these items on top of an antistatic pad or within a electrostatic shielding container.
5. Please verify that the power supply is switched off before unplugging the power supply connector from the motherboard.

Installation Notices

1. Prior to installation, please do not remove the stickers on the motherboard. These stickers are required for warranty validation.
2. Prior to the installation of the motherboard or any hardware, please first carefully read the information in the provided manual.
3. Before using the product, please verify that all cables and power connectors are connected.
4. To prevent damage to the motherboard, please do not allow screws to come in contact with the motherboard circuit or its components.
5. Please make sure there are no leftover screws or metal components placed on the motherboard or within the computer casing.
6. Please do not place the computer system on an uneven surface.
7. Turning on the computer power during the installation process can lead to damage to system components as well as physical harm to the user.
8. If you are uncertain about any installation steps or have a problem related to the use of the product, please consult a certified computer technician.

Instances of Non-Warranty

1. Damage due to natural disaster, accident or human cause.
2. Damage as a result of violating the conditions recommended in the user manual.
3. Damage due to improper installation.
4. Damage due to use of uncertified components.
5. Damage due to use exceeding the permitted parameters.
6. Product determined to be an unofficial Gigabyte product.

1-2 Feature Summary

CPU	<ul style="list-style-type: none"> ◆ Socket 939 for AMD Sempron™ / Athlon™ 64 / Athlon™ 64 FX / Athlon™ 64 X2 Dual-Core processor (K8) ◆ 2000MT/s system bus ◆ Supports core frequencies in excess of 3000+ and faster
Chipset	<ul style="list-style-type: none"> ◆ Northbridge: nVIDIA® GeForce 6100 ◆ Southbridge: nVIDIA® nForce 430 ◆ Supported on the Win 2000/XP operating systems
Memory	<ul style="list-style-type: none"> ◆ 4 DDR DIMM memory slots (supports up to 4GB memory) ^(Note 1) ◆ Supports dual channel DDR 400/333/266/200 DIMM
Slots	<ul style="list-style-type: none"> ◆ 1 PCI Express x 16 slot ◆ 1 PCI Express x 1 slot ◆ 2 PCI slots
IDE Connections	<ul style="list-style-type: none"> ◆ 2 IDE connection (UDMA 33/ATA 66/ATA 100/ATA 133), allows connection of 4 IDE devices ◆ Supported on the Win 2000/XP operating systems
FDD Connections	<ul style="list-style-type: none"> ◆ 1 FDD connection, allows connection of 1 FDD device
Onboard SATA 3Gb/s	<ul style="list-style-type: none"> ◆ 4 SATA 3Gb/s ports from nVIDIA® nForce 430 controller ◆ Supported on the Win 2000/XP operating systems
Peripherals	<ul style="list-style-type: none"> ◆ 1 parallel port supporting Normal/EPP/ECP mode ◆ 1 VGA port, onboard COMA connection ◆ 8 USB 2.0/1.1 ports (rear x 4, front x 4 via cable) ◆ 2 IEEE1394 ports (rear x 1, front x1 via cable) ◆ 1 front audio connector ◆ 1 PS/2 keyboard port ◆ 1 PS/2 mouse port
Onboard VGA	<ul style="list-style-type: none"> ◆ Built-in nVIDIA® GeForce 6100 Chipset
Onboard LAN	<ul style="list-style-type: none"> ◆ VITESSE 8201 phy (10/100/1000Mbit) ◆ 1 RJ45 port ◆ Supported on the Win 2000/XP operating systems
Onboard Audio	<ul style="list-style-type: none"> ◆ ALC880 CODEC ◆ High Definition Audio ◆ Supports 2 / 4 / 6 / 8 channel audio ◆ Supports Line In ; Line Out (Front Speaker Out) ; MIC ; Surround Speaker Out (Rear Speaker Out) ; Center/Subwoofer Speaker Out ; Side Speaker Out connection ◆ SPDIF In/Out connection ◆ CD In connection ◆ Supported on the Win 2000/XP operating systems

(Note 1) Due to standard PC architecture, a certain amount of memory is reserved for system usage and therefore the actual memory size is less than the stated amount.

For example, 4 GB of memory size will instead be shown as 3.xxGB memory during system startup.

I/O Control	♦ Winbond W83627
Hardware Monitor	♦ System voltage detection ♦ CPU / System temperature detection ♦ CPU / System fan speed detection ♦ CPU warning temperature ♦ CPU / System fan failure warning ♦ CPU smart fan control ^(Note 2)
Onboard SATA	♦ Onboard nVIDIA® nForce 430 controller
3Gb/s RAID	- supports data striping (RAID 0), mirroring (RAID 1), RAID0+1, and RAID 5 functions - supports data transfer rate of up to 300 MB/s - supports hot plugging function - supports a maximum of 4 SATA 3Gb/s connections - supported on the Win 2000/XP operating systems
BIOS	♦ Use of licensed AWARD BIOS ♦ Supports Q-Flash
Additional Features	♦ Supports @BIOS ♦ Supports EasyTune (only supports Hardware Monitor function) ^(Note 3)
Overclocking	♦ Over Clock via BIOS (CPU/PCIE)
Form Factor	♦ Micro ATX form factor; 24.4cm x 24.4cm

(Note 2) Whether the CPU Smart FAN Control function is supported will depend on the CPU you install.

For more detailed information please check at the FAQ section on GIGABYTE's website.

(Note 3) EasyTune functions may vary depending on different motherboards.

1-3 Installation of the CPU and Fan Heat Sink



Before installing the CPU, please comply with the following conditions:

1. Please make sure that the motherboard supports the CPU.
2. Please take note of the one indented corner of the CPU. If you install the CPU in the wrong direction, the CPU will not insert properly. If this occurs, please change the insert direction of the CPU.
3. Please add an even layer of heat sink paste between the CPU and fan heat sink.
4. Please make sure the fan heat sink is installed on the CPU prior to system use, otherwise overheating and permanent damage of the CPU may occur.
5. Please set the CPU host frequency in accordance with the processor specifications. It is not recommended that the system bus frequency be set beyond hardware specifications since it does not meet the required standards for the peripherals. If you wish to set the frequency beyond the proper specifications, please do so according to your hardware specifications including the CPU, graphics card, memory, hard drive, etc.

1-3-1 Installation of the CPU

Check the processor pins to see that none are bent. Move the socket lever to the unlocked position as shown in Fig. 1 (90° to the plane of the motherboard) prior to inserting the processor. The pin 1 location is designated on the processor by a copper triangle that corresponds to a triangle marking on the socket as shown in Fig. 2. Align the processor to the socket and gently lower it into place. Do not force the processor into the socket.

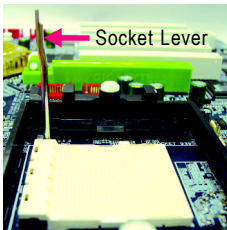


Fig.1
Position lever at a 90-degree angle.



Fig.2
Pin 1 location on the socket and processor.
Gently place the CPU into position making sure that the CPU pins fit perfectly into their holes. Once the CPU is positioned into its socket, place one finger down on the middle of the CPU and gently press the metal lever back into its original position.



Please use extra care when installing the CPU. The CPU will not fit if positioned incorrectly. Rather than applying force, please change the positioning of the CPU.

1-3-2 Installation of the Fan Heat Sink

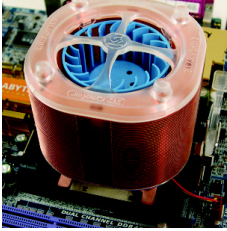


Fig.1

Before installing the fan heat sink, please first add an even layer of heat sink paste on the surface of the CPU. Install all the fan heat sink components (Please refer to the heat sink manual for detailed installation instructions).

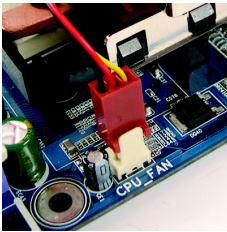


Fig.2

Please connect the fan heat sink power connector to the CPU_FAN connector located on the motherboard so that the heat sink can properly function to prevent CPU overheating.



NOTE

The heat sink may adhere to the CPU as a result of hardening of the heat sink paste. To prevent such an occurrence, it is suggested that either thermal tape rather than heat sink paste be used for heat dissipation or using extreme care when removing the heat sink.

1-4 Installation of Memory



Before installing the memory modules, please comply with the following conditions:

1. Please make sure that the memory used is supported by the motherboard. It is recommended that memory of similar capacity, specifications and brand be used.
2. Before installing or removing memory modules, please make sure that the computer power is switched off to prevent hardware damage.
3. Memory modules have a foolproof insertion design. A memory module can be installed in only one direction. If you are unable to insert the module, please switch the direction.

The motherboard supports DDR memory modules, whereby BIOS will automatically detect memory capacity and specifications. Memory modules are designed so that they can be inserted only in one direction. The memory capacity used can differ with each slot.

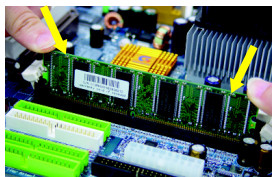
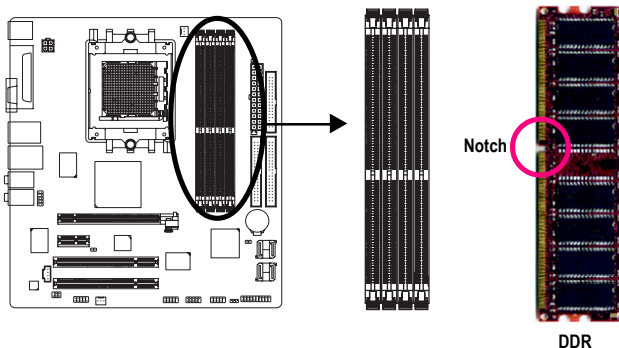


Fig.1

The DIMM socket has a notch, so the DIMM memory module can only fit in one direction. Insert the DIMM memory module vertically into the DIMM socket. Then push it down.



Fig.2

Close the plastic clip at both edges of the DIMM sockets to lock the DIMM module.

Reverse the installation steps when you wish to remove the DIMM module.

Dual Channel Memory Configuration

The GA-K8N51GMF-9 supports the Dual Channel Technology. When the Dual Channel Technology is activated, the bandwidth of memory bus will be double the original one.

Due to CPU limitation, if you want to operate the Dual Channel Technology, please follow the guidelines below for Dual Channel memory configuration.

1. Dual Channel mode will not be enabled if only one DDR memory module is installed.
2. To enable Dual Channel mode with 2 memory modules (it is recommended to use memory modules of identical brand, size, chips, and speed), you must install them into DIMM sockets of the same color.
3. To enable Dual Channel mode with 4 memory modules, it is recommended to use memory modules of identical brand, size, chips, and speed.

The following is a Dual Channel Memory configuration table:

(DS: Double Side, SS: Single Side, --:Empty)

	DDR1	DDR2	DDR3	DDR4
2 memory modules	DS/SS	DS/SS	--	--
	--	--	DS/SS	DS/SS
4 memory modules	DS/SS	DS/SS	DS/SS	DS/SS



If two memory modules are to be used to achieve Dual Channel mode, we recommend installing them in DDR1 and DDR2 DIMM sockets.



All of the memory configurations below will cause system unable to boot.

(DS: Double Side, SS: Single Side, --: Empty)

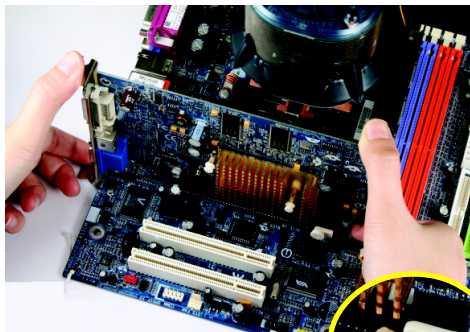
	DDR1	DDR2	DDR3	DDR4
1 memory module	--	DS/SS	--	--
	--	--	--	DS/SS
2 memory modules	--	DS/SS	DS/SS	--
	DS/SS	--	--	DS/SS
	--	DS/SS	--	DS/SS
3 memory modules	DS/SS	DS/SS	DS/SS	--
	--	DS/SS	DS/SS	DS/SS
	DS/SS	--	DS/SS	DS/SS
	DS/SS	DS/SS	--	DS/SS

1-5 Installation of Expansion Cards

You can install your expansion card by following the steps outlined below:

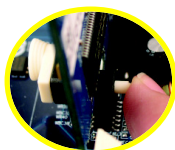
1. Read the related expansion card's instruction document before install the expansion card into the computer.
2. Remove your computer's chassis cover, screws and slot bracket from the computer.
3. Press the expansion card firmly into expansion slot in motherboard.
4. Be sure the metal contacts on the card are indeed seated in the slot.
5. Replace the screw to secure the slot bracket of the expansion card.
6. Replace your computer's chassis cover.
7. Power on the computer, if necessary, setup BIOS utility of expansion card from BIOS.
8. Install related driver from the operating system.

Installing a PCI Express x 16 expansion card:



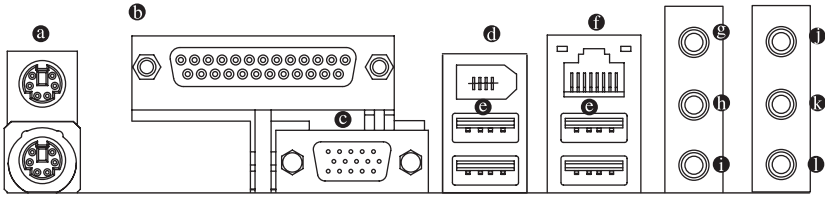
CAUTION

Please carefully pull out the small white-drawable bar at the end of the PCI Express x 16 slot when you try to install/uninstall the VGA card. Please align the VGA card to the onboard PCI Express x 16 slot and press firmly down on the slot. Make sure your VGA card is locked by the small white-drawable bar.



To install a VGA card or to release an installed card, users can also press the latch on the back of the drawable bar as the picture to the left shows.

1-6 I/O Back Panel Introduction



● PS/2 Keyboard and PS/2 Mouse Connector

To install a PS/2 port keyboard and mouse, plug the mouse to the upper port (green) and the keyboard to the lower port (purple).

● Parallel Port

The parallel port allows connection of a printer, scanner and other peripheral devices.

● VGA Port

Monitor can be connected to VGA port.

● IEEE 1394 Port

Serial interface standard set by Institute of Electrical and Electronics Engineers, which has features like high speed, high bandwidth and hot plug.

● USB port

Before you connect your device(s) into USB connector(s), please make sure your device(s) such as USB keyboard, mouse, scanner, zip, speaker...etc. have a standard USB interface.

Also make sure your OS supports USB controller. If your OS does not support USB controller, please contact OS vendor for possible patch or driver upgrade. For more information please contact your OS or device(s) vendors.

● LAN Port

The provided Internet connection is Gigabit Ethernet , providing data transfer speeds of 10/100/1000Mbps.

● Line In

The default Line In jack. Devices like CD-ROM, walkman etc. can be connected to Line In jack.

● Line Out (Front Speaker Out)

The default Line Out (Front Speaker Out) jack. Stereo speakers, earphone or front surround speakers can be connected to Line Out (Front Speaker Out) jack.

● MIC In

The default MIC In jack. Microphone must be connected to MIC In jack.

● Surround Speaker Out (Rear Speaker Out)

The default Surround Speaker Out (Rear Speaker Out) jack. Rear surround speakers can be connected to Surround Speaker Out (Rear Speaker Out) jack.

④ Center/Subwoofer Speaker Out

The default Center/Subwoofer Speaker Out jack. Center/Subwoofer speakers can be connected to Center/Subwoofer Speaker Out jack.

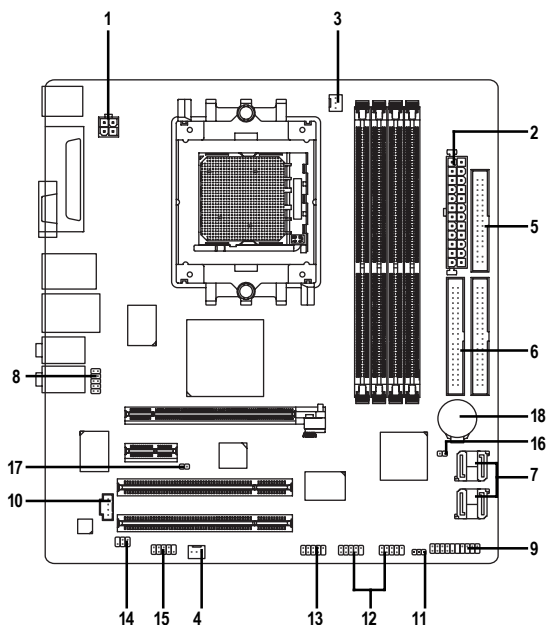
⑤ Side Speaker Out

The default Side Speaker Out jack. Surround side speakers can be connected to Side Speaker Out jack.



In addition to the default speakers settings, the ④ ~ ⑤ audio jacks can be reconfigured to perform different functions via the audio software. Only microphones still **MUST** be connected to the default Mic In jack (①). Please refer to the 2-/4-/6-/8- channel audio setup steps for detailed software configuration information.

1-7 Connectors Introduction



1) ATX_12V	10) CD_IN
2) ATX (Power Connector)	11) PWR_LED
3) CPU_FAN	12) F_USB1 / F_USB2
4) SYS_FAN	13) F1_1394
5) FDD	14) SPDIF_IO
6) IDE1 / IDE2	15) COMA
7) SATAII0/1/2/3	16) CLR_CMOS
8) F_AUDIO	17) CI
9) F_PANEL	18) BATTERY

1/2) ATX_12V/ATX (Power Connector)

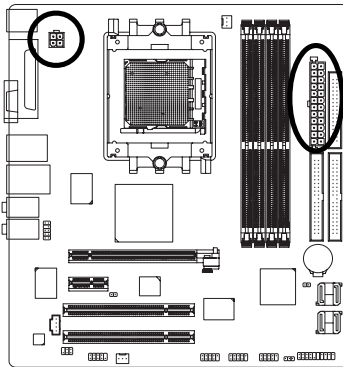
With the use of the power connector, the power supply can supply enough stable power to all the components on the motherboard. Before connecting the power connector, please make sure that all components and devices are properly installed. Align the power connector with its proper location on the motherboard and connect tightly.

The ATX_12V power connector mainly supplies power to the CPU. If the ATX_12V power connector is not connected, the system will not start.

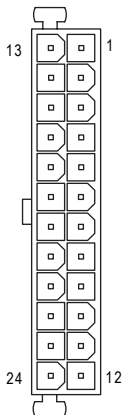
Caution!

Please use a power supply that is able to handle the system voltage requirements. It is recommended that a power supply that can withstand high power consumption be used (300W or greater). If a power supply is used that does not provide the required power, the result can lead to an unstable system or a system that is unable to start.

If you use a 24-pin ATX power supply, please remove the small cover on the power connector on the motherboard before plugging in the power cord ; otherwise, please do not remove it.



Pin No.	Definition
1	GND
2	GND
3	+12V
4	+12V



Pin No.	Definition	Pin No.	Definition
1	3.3V	13	3.3V
2	3.3V	14	-12V
3	GND	15	GND
4	+5V	16	PS_ON(soft On/Off)
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	Power Good	20	-5V
9	5V SB(stand by +5V)	21	+5V
10	+12V	22	+5V
11	+12V(Only for 24-pin ATX)	23	+5V (Only for 24-pin ATX)
12	3.3V(Only for 24-pin ATX)	24	GND(Only for 24-pin ATX)

3/4) CPU_FAN / SYS_FAN (Cooler Fan Power Connector)

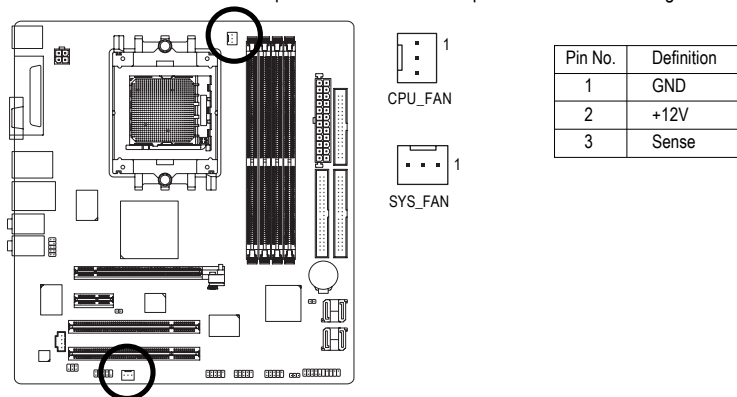
The cooler fan power connector supplies a +12V power voltage via a 3-pin power connector and possesses a foolproof connection design.

Most coolers are designed with color-coded power connector wires. A red power connector wire indicates a positive connection and requires a +12V power voltage. The black connector wire is the ground wire (GND).

Please remember to connect the power to the cooler to prevent system overheating and failure.

Caution!

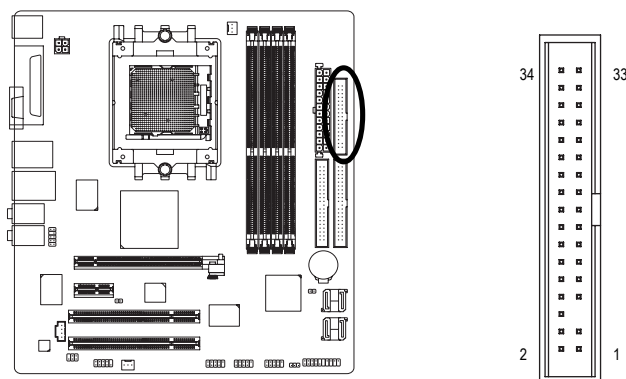
Please remember to connect the power to the CPU fan to prevent CPU overheating and failure.



5) FDD (FDD Connector)

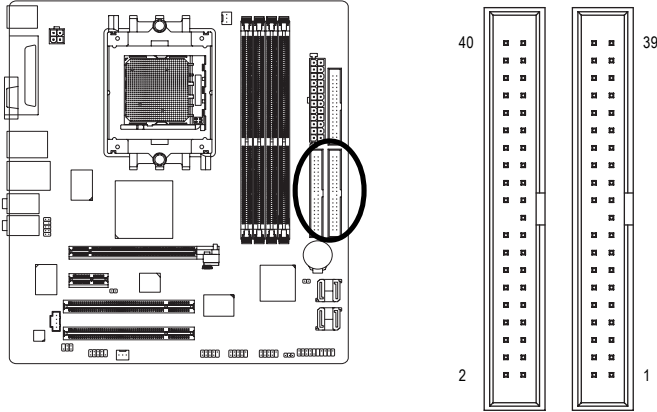
The FDD connector is used to connect the FDD cable while the other end of the cable connects to the FDD drive. The types of FDD drives supported are: 360KB, 720KB, 1.2MB, 1.44MB and 2.88MB.

Please connect the red power connector wire to the pin1 position.



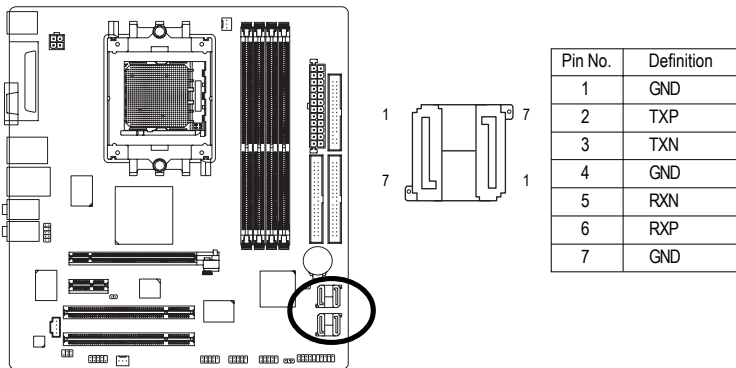
6) IDE1 / IDE2 (IDE Connector)

An IDE device connects to the computer via an IDE connector. One IDE connector can connect to one IDE cable, and the single IDE cable can then connect to two IDE devices (hard drive or optical drive). If you wish to connect two IDE devices, please set the jumper on one IDE device as Master and the other as Slave (for information on settings, please refer to the instructions located on the IDE device).



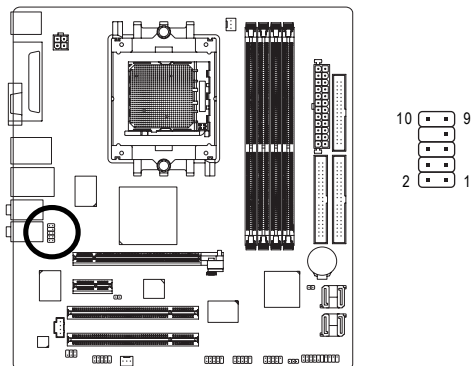
7) SATAII0/1/2/3 (SATA 3Gb/s Connectors, Controlled by nForce 430)

SATA 3Gb/s can provide up to 300MB/s transfer rate. Please refer to the BIOS setting for the SATA 3Gb/s and install the proper driver in order to work properly.



8) F_AUDIO (Front Audio Connector)

This connector supports either HD (High Definition) or AC97 front panel audio module. If you wish to use the front audio function, connect the front panel audio module to this connector. Check the pin assignments carefully while you connect the front panel audio module. Incorrect connection between the module and connector will make the audio device unable to work or even damage it. For optional front panel audio module, please contact your chassis manufacturer.



HD Audio:

Pin No.	Definition
1	MIC2_L
2	GND
3	MIC2_R
4	-ACZ_DET
5	Line2_R
6	FSENSE1
7	FAUOIO_JD
8	No Pin
9	LINE2_L
10	FSENSE2

AC'97 Audio:

Pin No.	Definition
1	MIC
2	GND
3	MIC Power
4	NC
5	Line Out (R)
6	NC
7	NC
8	No Pin
9	Line Out (L)
10	NC

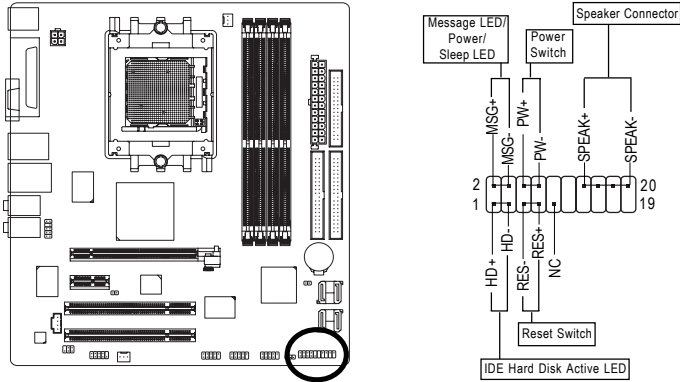


NOTE

By default, the audio driver is configured to support HD Audio. To connect an AC97 front panel audio module to this connector, please refer to the instructions on Page 74 about the software settings.

9) F_PANEL (Front Panel Jumper)

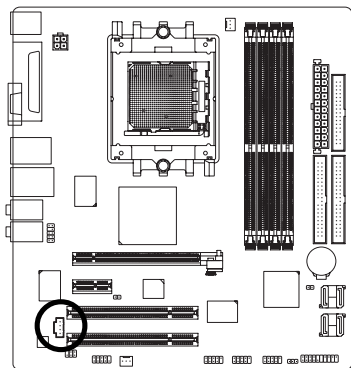
Please connect the power LED, PC speaker, reset switch and power switch etc of your chassis front panel to the F_PANEL connector according to the pin assignment below.



HD (IDE Hard Disk Active LED)	Pin 1: LED anode(+) Pin 2: LED cathode(-)
SPEAK (Speaker Connector)	Pin 1: Power Pin 2- Pin 3: NC Pin 4: Data(-)
RES (Reset Switch)	Open: Normal Close: Reset Hardware System
PW (Power Switch)	Open: Normal Close: Power On/Off
MSG (Message LED/Power/Sleep LED)	Pin 1: LED anode(+) Pin 2: LED cathode(-)
NC	NC

10) CD_IN (CD In Connector)

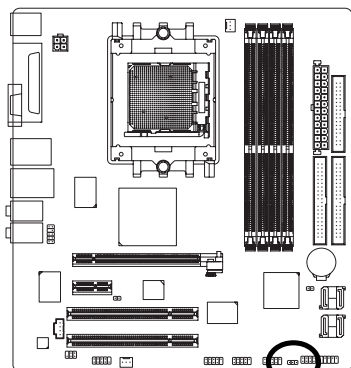
Connect CD-ROM or DVD-ROM audio out to the connector.



Pin No.	Definition
1	CD-L
2	GND
3	GND
4	CD-R

11) PWR_LED

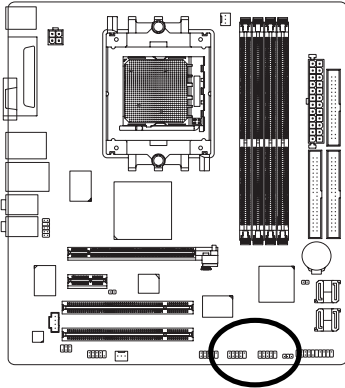
PWR_LED is connect with the system power indicator to indicate whether the system is on/off. It will blink when the system enters suspend mode.



Pin No.	Definition
1	MPD+
2	MPD-
3	MPD-

12) F_USB1 / F_USB2 (Front USB Connector)

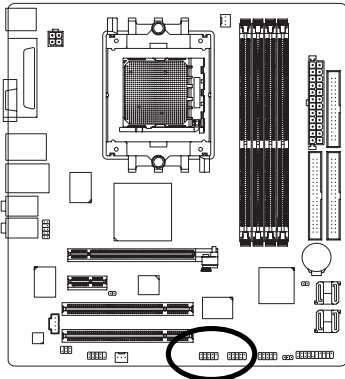
Be careful with the polarity of the front USB connector. Check the pin assignment carefully while you connect the front USB cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional front USB cable, please contact your local dealer.



Pin No.	Definition
1	Power
2	Power
3	USB DX-
4	USB Dy-
5	USB DX+
6	USB Dy+
7	GND
8	GND
9	No Pin
10	NC

13) F1_1394 (IEEE 1394 Connector)

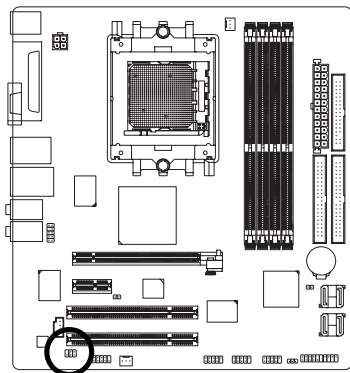
Serial interface standard set by Institute of Electrical and Electronics Engineers, which has features like high speed, highbandwidth and hot plug. Be careful with the polarity of the IEEE1394 connector. Check the pin assignment carefully while you connect the IEEE1394 cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional IEEE1394 cable, please contact your local dealer.



Pin No.	Definition
1	TPA+
2	TPA-
3	GND
4	GND
5	TPB+
6	TPB-
7	Power
8	Power
9	No Pin
10	GND

14) SPDIF_IO (SPDIF In/Out)

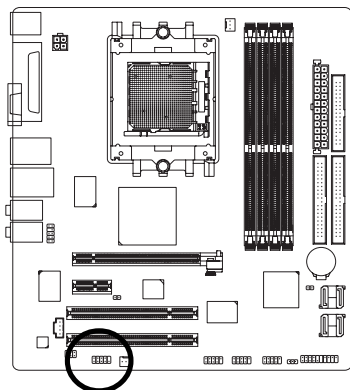
The SPDIF output is capable of providing digital audio to external speakers or compressed AC3 data to an external Dolby Digital Decoder. Use this feature only when your stereo system has digital input function. Use SPDIF IN feature only when your device has digital output function. Be careful with the polarity of the SPDIF_IO connector. Check the pin assignment carefully while you connect the SPDIF cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional SPDIF cable, please contact your local dealer.



Pin No.	Definition
1	Power
2	No Pin
3	SPDIF
4	SPDIFI
5	GND
6	GND

15) COMA (COMA Connector)

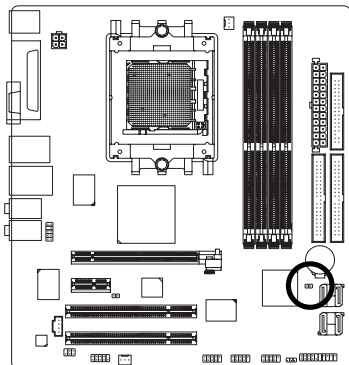
Be careful with the polarity of the COMA connector. Check the pin assignments while you connect the COMA cable. Please contact your nearest dealer for optional COMA cable.



Pin No.	Definition
1	NDCDA-
2	NSINA
3	NSOUTA
4	NDTRA-
5	GND
6	NDSRA-
7	NRTSA-
8	NCTSA-
9	NRIA-
10	No Pin

16) CLR_CMOS (Clear CMOS)

You may clear the CMOS data to its default values by this header. To clear CMOS, temporarily short 1-2 pin. Default doesn't include the jumper to prevent from improper use this header.

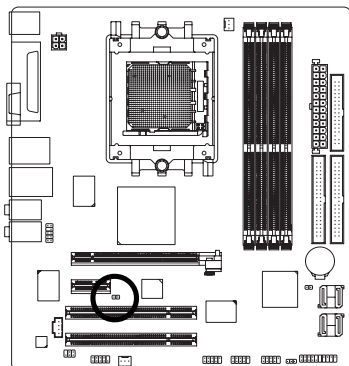


1 Open: Normal

1 Short: Clear CMOS

17) CI (Chassis Intrusion, Case Open)

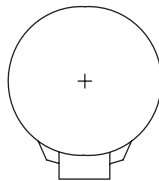
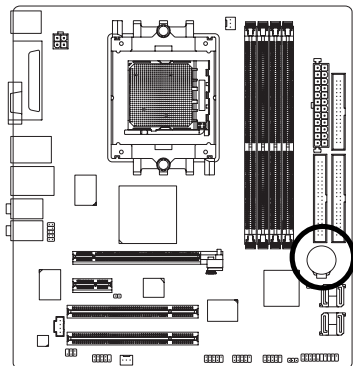
This 2-pin connector allows your system to detect if the chassis cover is removed. You can check the "Case Open" status in BIOS Setup.



1 2

Pin No.	Definition
1	Signal
2	GND

18) BATTERY



- ❖ Danger of explosion if battery is incorrectly replaced.
- ❖ Replace only with the same or equivalent type recommended by the manufacturer.
- ❖ Dispose of used batteries according to the manufacturer's instructions.

If you want to erase CMOS...

1. Turn OFF the computer and unplug the power cord.
2. Take out the battery gently and put it aside for about 10 minutes.
(Or you can use a metal object to connect the positive and negative pins in the battery holder to make them short for one minute.)
3. Re-install the battery.
4. Plug the power cord and turn ON the computer.

Chapter 2 BIOS Setup

BIOS (Basic Input and Output System) includes a CMOS SETUP utility which allows user to configure required settings or to activate certain system features.

The CMOS SETUP saves the configuration in the CMOS SRAM of the motherboard.

When the power is turned off, the battery on the motherboard supplies the necessary power to the CMOS SRAM.

When the power is turned on, pushing the button during the BIOS POST (Power-On Self Test) will take you to the CMOS SETUP screen. You can enter the BIOS setup screen by pressing "Ctrl + F1".

When setting up BIOS for the first time, it is recommended that you save the current BIOS to a disk in the event that BIOS needs to be reset to its original settings. If you wish to upgrade to a new BIOS, either Gigabyte's Q-Flash or @BIOS utility can be used.

Q-Flash allows the user to quickly and easily update or backup BIOS without entering the operating system. @BIOS is a Windows-based utility that does not require users to boot to DOS before upgrading BIOS but directly download and update BIOS from the Internet.

CONTROL KEYS

<↑><↓><←><→>	Move to select item
<Enter>	Select Item
<Esc>	Main Menu - Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu - Exit current page and return to Main Menu
<Page Up>	Increase the numeric value or make changes
<Page Down>	Decrease the numeric value or make changes
<F1>	General help, only for Status Page Setup Menu and Option Page Setup Menu
<F2>	Item Help
<F5>	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
<F6>	Load the fail-safe default CMOS value from BIOS default table
<F7>	Load the Optimized Defaults
<F8>	Q-Flash utility
<F9>	System Information
<F10>	Save all the CMOS changes, only for Main Menu

Main Menu

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Status Page Setup Menu / Option Page Setup Menu

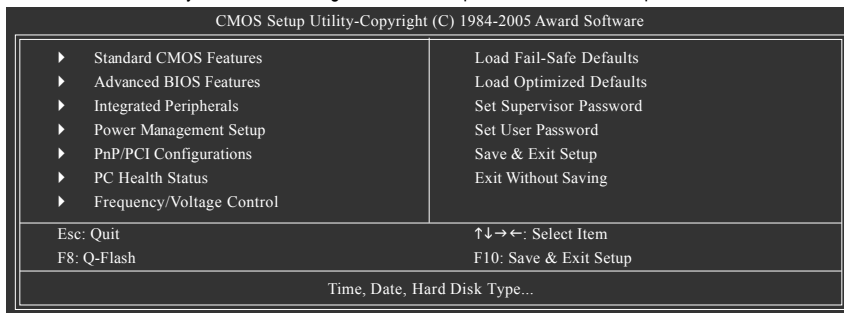
Press <F1> to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc>.



The BIOS Setup menus described in this chapter are for reference only and may differ from the exact settings for your motherboard.

The Main Menu (For example: BIOS Ver. : F1g)

Once you enter Award BIOS CMOS Setup Utility, the Main Menu (as figure below) will appear on the screen. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.



If you can't find the setting you want, please press "Ctrl+F1" to search the advanced option hidden. Please Load Optimized Defaults in the BIOS when somehow the system works not stable as usual. This action makes the system reset to the default for stability.

■ Standard CMOS Features

This setup page includes all the items in standard compatible BIOS.

■ Advanced BIOS Features

This setup page includes all the items of Award special enhanced features.

■ Integrated Peripherals

This setup page includes all onboard peripherals.

■ Power Management Setup

This setup page includes all the items of Green function features.

■ PnP/PCI Configuration

This setup page includes all the configurations of PCI & PnP ISA resources.

■ PC Health Status

This setup page is about system autodetect temperature, voltage, fan speed, etc.

■ Frequency/Voltage Control

This setup page is to control CPU clock and frequency ratio.

■ Load Fail-Safe Defaults

Fail-Safe Defaults indicates the value of the system parameters which the system would be in safe configuration.

■ Load Optimized Defaults

Optimized Defaults indicates the value of the system parameters which the system would be in best performance configuration.

- **Set Supervisor Password**

Change, set, or disable password. It allows you to limit access to the system and Setup, or just to Setup.

- **Set User Password**

Change, set, or disable password. It allows you to limit access to the system.

- **Save & Exit Setup**

Save CMOS value settings to CMOS and exit setup.

- **Exit Without Saving**

Abandon all CMOS value changes and exit setup.

» Access Mode Use this to set the access mode for the hard drive. The two options are: Large/Auto(default:Auto)

» Capacity Capacity of currently installed hard drive.

Hard drive information should be labeled on the outside drive casing. Enter the appropriate option based on this information.

» Cylinder Number of cylinders

» Head Number of heads

» Precomp Write precomp

» Landing Zone Landing zone

» Sector Number of sectors

☞ Drive A

The category identifies the types of floppy disk drive A that has been installed in the computer.

» None No floppy drive installed.

» 360K, 5.25" 5.25 inch PC-type standard drive; 360K byte capacity.

» 1.2M, 5.25" 5.25 inch AT-type high-density drive; 1.2M byte capacity.
(3.5 inch when 3 Mode is Enabled).

» 720K, 3.5" 3.5 inch double-sided drive; 720K byte capacity

» 1.44M, 3.5" 3.5 inch double-sided drive; 1.44M byte capacity.

» 2.88M, 3.5" 3.5 inch double-sided drive; 2.88M byte capacity.

☞ Floppy 3 Mode Support (for Japan Area)

» Disabled Normal Floppy Drive. (Default value)

» Drive A Drive A is 3 mode Floppy Drive.

☞ Halt on

The category determines whether the computer will stop if an error is detected during power up.

» No Errors The system boot will not stop for any error that may be detected and you will be prompted.

» All Errors Whenever the BIOS detects a non-fatal error the system will be stopped.

» All, But Keyboard The system boot will not stop for a keyboard error; it will stop for all other errors. (Default value)

» All, But Diskette The system boot will not stop for a disk error; it will stop for all other errors.

» All, But Disk/Key The system boot will not stop for a keyboard or disk error; it will stop for all other errors.

☞ Memory

The category is display-only which is determined by POST (Power On Self Test) of the BIOS.

» Base Memory

The POST of the BIOS will determine the amount of base (or conventional) memory installed in the system.

The value of the base memory is typically 512K for systems with 512K memory installed on the motherboard, or 640K for systems with 640K or more memory installed on the motherboard.

» Extended Memory

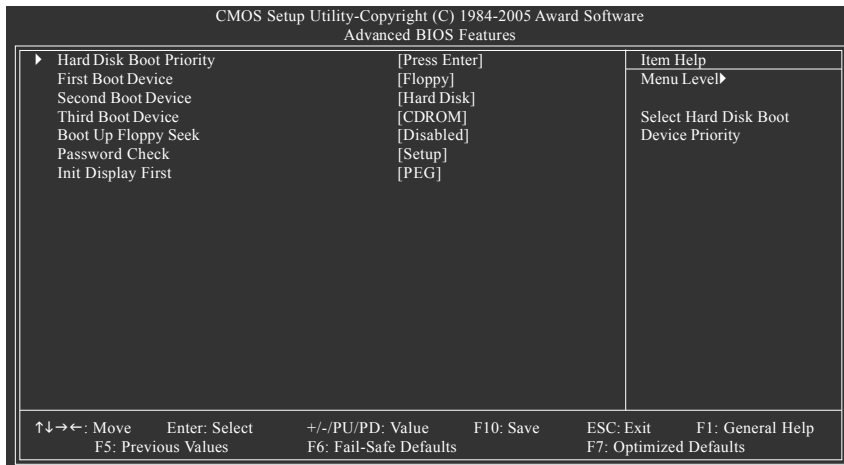
The BIOS determines how much extended memory is present during the POST.

This is the amount of memory located above 1 MB in the CPU's memory address map.

» Total Memory

This item displays the memory size that used.

2-2 Advanced BIOS Features



☞ Hard Disk Boot Priority

Select boot sequence for onboard(or add-on cards) SCSI, RAID, etc.

Use <↑> or <↓> to select a device, then press<+> to move it up, or <-> to move it down the list. Press <ESC> to exit this menu.

☞ First / Second / Third Boot Device

- ▶▶ Floppy Select your boot device priority by Floppy.
- ▶▶ LS120 Select your boot device priority by LS120.
- ▶▶ Hard Disk Select your boot device priority by Hard Disk.
- ▶▶ CDROM Select your boot device priority by CDROM.
- ▶▶ ZIP Select your boot device priority by ZIP.
- ▶▶ USB-FDD Select your boot device priority by USB-FDD.
- ▶▶ USB-ZIP Select your boot device priority by USB-ZIP.
- ▶▶ USB-CDROM Select your boot device priority by USB-CDROM.
- ▶▶ USB-HDD Select your boot device priority by USB-HDD.
- ▶▶ Legacy LAN Select your boot device priority by LAN.
- ▶▶ Disabled Disable this function.

☞ Boot Up Floppy Seek

During POST, BIOS will determine the floppy disk drive installed is 40 or 80 tracks. 360K type is 40 tracks 720K, 1.2M and 1.44M are all 80 tracks.

- ▶▶ Enabled BIOS searches for floppy disk drive to determine it is 40 or 80 tracks. Note that BIOS can not tell from 720K, 1.2M or 1.44M drive type as they are all 80 tracks.
- ▶▶ Disabled BIOS will not search for the type of floppy disk drive by track number. Note that there will not be any warning message if the drive installed is 360K. (Default value)

🔑 Password Check

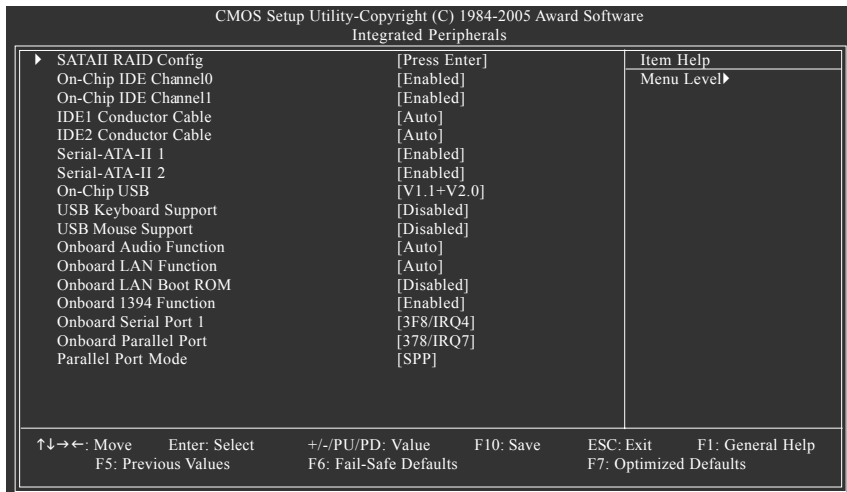
- ▶▶ System The system can not boot and can not access to Setup page will be denied if the correct password is not entered at the prompt.
- ▶▶ Setup The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt. (Default value)

🔑 Init Display First

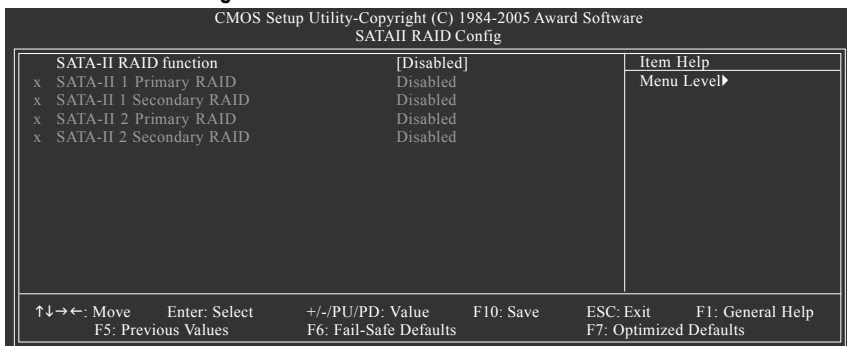
This feature allows you to select the first initiation of the monitor display from which card when you install a PCI card and a PCI Express VGA card on the motherboard.

- ▶▶ PCI Slot Set Init Display First to PCI VGA card.
- ▶▶ Onboard VGA Set Init Display First to onboard VGA.
- ▶▶ PEG Set Init Display First to PCI Express VGA card.(Default value)

2-3 Integrated Peripherals



⊞ SATAII RAID Config



⊞ SATA-II RAID function

- ▶ Enabled Enable SATAII RAID function.
- ▶ Disabled Disable SATAII RAID function. (Default value)

⊞ SATA-II 1 Primary RAID

- ▶ Enabled Enable SATAII 1 1st SATA RAID function.
- ▶ Disabled Disable this function. (Default value)

⊞ SATA-II 1 Secondary RAID

- ▶ Enabled Enable SATAII 1 2nd SATA RAID function.
- ▶ Disabled Disable this function. (Default value)

☞ **SATA-II 2 Primary RAID**

- ▶▶ Enabled Enable SATAII 2 1st SATA RAID function.
- ▶▶ Disabled Disable this function. (Default value)

☞ **SATA-II 2 Secondary RAID**

- ▶▶ Enabled Enable SATAII 2 2nd SATA RAID function.
- ▶▶ Disabled Disable this function. (Default value)

☞ **On-Chip IDE Channel0**

- ▶▶ Enabled Enable onboard 1st channel IDE port. (Default value)
- ▶▶ Disabled Disable onboard 1st channel IDE port.

☞ **On-Chip IDE Channel1**

- ▶▶ Enabled Enable onboard 2nd channel IDE port. (Default value)
- ▶▶ Disabled Disable onboard 2nd channel IDE port.

☞ **IDE1 Conductor Cable**

- ▶▶ Auto BIOS autodetects IDE1 conductor cable. (Default Value)
- ▶▶ ATA66/100/133 Set IDE1 Conductor Cable to ATA66/100/133 (Please make sure your IDE device and cable are compatible with ATA66/100/133).
- ▶▶ ATA33 Set IDE1 Conductor Cable to ATA33. (Please make sure your IDE device and cable are compatible with ATA33)

☞ **IDE2 Conductor Cable**

- ▶▶ Auto BIOS autodetects IDE2 conductor cable. (Default Value)
- ▶▶ ATA66/100/133 Set IDE2 Conductor Cable to ATA66/100/133. (Please make sure your IDE device and cable are compatible with ATA66/100/133)
- ▶▶ ATA33 Set IDE2 Conductor Cable to ATA33. (Please make sure your IDE device and cable are compatible with ATA33)

☞ **Serial-ATA-II 1**

- ▶▶ Enabled Enable Serial-ATAII 1 support. (Default Value)
- ▶▶ Disabled Disable Serial-ATAII 1 support.

☞ **Serial-ATA-II 2**

- ▶▶ Enabled Enable Serial-ATAII 2 support. (Default Value)
- ▶▶ Disabled Disable Serial-ATAII 2 support.

☞ **On-Chip USB**

- ▶▶ V1.1+V2.0 Enable USB 1.1 and USB 2.0 controllers. (Default Value)
- ▶▶ V1.1 Enable only USB 1.1 controller
- ▶▶ Disabled Disable onchip USB support.

☞ **USB Keyboard Support**

- ▶▶ Enabled Enable USB keyboard support.
- ▶▶ Disabled Disable USB keyboard support. (Default value)

☞ **USB Mouse Support**

- ▶▶ Enabled Enable USB mouse support.
- ▶▶ Disabled Disable USB mouse support. (Default value)

☞ **Onboard Audio Function**

- ▶▶ Auto Auto-detect onboard audio function. (Default value)
- ▶▶ Disabled Disable this function.

☞ **Onboard LAN Function**

- ▶▶ Auto Auto-detect onboard LAN chip function.(Default value)
- ▶▶ Disabled Disable onboard LAN chip function.

☞ **Onboard LAN Boot ROM**

This function decide whether to invoke the boot ROM of the onboard LAN chip.

- ▶▶ Enabled Enable this function.
- ▶▶ Disabled Disable this function. (Default value)

☞ **Onboard 1394 Function**

- ▶▶ Enabled Enable onboard IEEE1394 function.(Default value)
- ▶▶ Disabled Disable onboard IEEE1394 function.

☞ **Onboard Serial Port 1**

- ▶▶ Auto BIOS will automatically setup the port 1 address.
- ▶▶ 3F8/IRQ4 Enable onboard Serial port 1 and address is 3F8/IRQ4. (Default value)
- ▶▶ 2F8/IRQ3 Enable onboard Serial port 1 and address is 2F8/IRQ3.
- ▶▶ 3E8/IRQ4 Enable onboard Serial port 1 and address is 3E8/IRQ4.
- ▶▶ 2E8/IRQ3 Enable onboard Serial port 1 and address is 2E8/IRQ3.
- ▶▶ Disabled Disable onboard Serial port 1.

☞ **Onboard Parallel Port**

- ▶▶ Disabled Disable onboard LPT port.
- ▶▶ 378/IRQ7 Enable onboard LPT port and address is 378/IRQ7. (Default value)
- ▶▶ 278/IRQ5 Enable onboard LPT port and address is 278/IRQ5.
- ▶▶ 3BC/IRQ7 Enable onboard LPT port and address is 3BC/IRQ7.

☞ **Parallel Port Mode**

- ▶▶ SPP Using Parallel port as Standard Parallel Port. (Default value)
- ▶▶ EPP Using Parallel port as Enhanced Parallel Port.
- ▶▶ ECP Using Parallel port as Extended Capabilities Port.
- ▶▶ ECP+EPP Using Parallel port as ECP and EPP mode.

☞ **Power On By Keyboard**

- ▶▶ Disabled Disabled this function. (Default value)
- ▶▶ Keyboard 98 If your keyboard have "POWER Key" button, you can press the key to power on the system.
- ▶▶ Any KEY Press any keys on your keyboard to power on the system.
- ▶▶ Password Enter from 1 to 5 characters to set the Keyboard Power On Password.

☞ **KB Power ON Password**

When "Power On by Keyboard" is set to Password, you can set the password here.

- ▶▶ Enter Input password (from 1 to 5 characters) and press Enter to set the Keyboard Power On password.

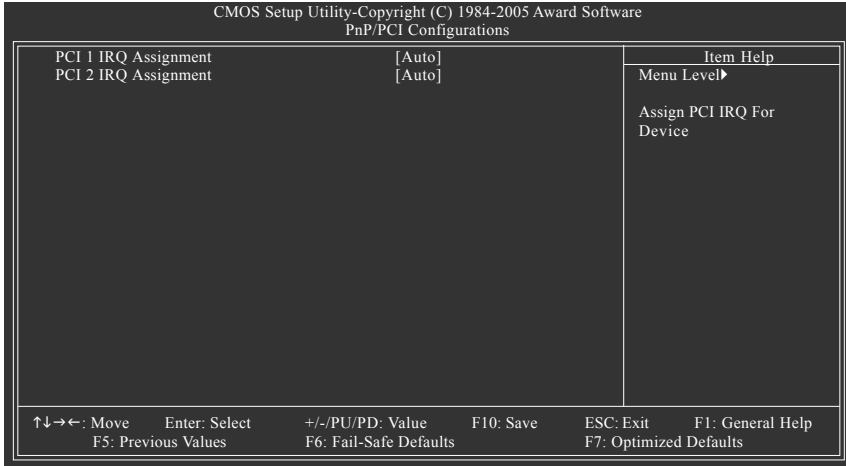
☞ **Power On By Mouse**

- ▶▶ Disabled Disabled this function. (Default value)
- ▶▶ Enable Double click on PS/2 mouse left button to power on the system.

☞ **AC BACK Function**

- ▶▶ Soft-Off When AC-power back to the system, the system will be in "Off" state. (Default value)
- ▶▶ Full-On When AC-power back to the system, the system always in "On" state.

2-5 PnP/PCI Configurations



☞ PCI 1 IRQ Assignment

- ▶▶ Auto Auto assign IRQ to PCI 1. (Default value)
- ▶▶ 3,4,5,7,9,10,11,12,14,15 Set IRQ 3,4,5,7,9,10,11,12,14,15 to PCI 1.

☞ PCI 2 IRQ Assignment

- ▶▶ Auto Auto assign IRQ to PCI 2. (Default value)
- ▶▶ 3,4,5,7,9,10,11,12,14,15 Set IRQ 3,4,5,7,9,10,11,12,14,15 to PCI 2.

2-6 PC Health Status

CMOS Setup Utility-Copyright (C) 1984-2005 Award Software		PC Health Status	
Reset Case Open Status	[Disabled]	Item Help	
Case Opened	Yes	Menu Level ▶	
VCORE	OK	[Disabled] Don't reset case open status	
DDR Power	OK	[Enabled] Clear case open status and set to be Disabled at next boot	
+3.3V	OK		
+12V	OK		
System Temperature	32°C/89°F		
CPU Temperature	45°C/113°F		
System FAN Speed	3245 RPM		
CPU FAN Speed	3245 RPM		
CPU Warning Temp.	[Disabled]		
System FAN Stop Warning	[Disabled]		
CPU FAN Stop Warning	[Disabled]		
CPU Smart FAN Control	[Disabled]		
↑↓←→: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults			

Reset Case Open Status

- ▶▶ Disabled Don't reset case open status. (Default value)
- ▶▶ Enabled Clear case open status at next boot.

Case Opened

If the case is closed, **Case Opened** will show "No."

If the case is opened, **Case Opened** will show "Yes."

If you want to reset **Case Opened** value, enable **Reset Case Open Status** and save the change to CMOS, and then your computer will restart.

Current Voltage(V) VCORE / DDR Power / +3.3V / +12V

- ▶▶ Detect system's voltage status automatically.

System/CPU Temperature

- ▶▶ Detect system/CPU temperature automatically.

System/CPU FAN Speed (RPM)

- ▶▶ Detect system/CPU fan speed status automatically.

CPU Warning Temp.

- ▶▶ 60°C / 140°F Monitor CPU temperature at 60°C / 140°F.
- ▶▶ 70°C / 158°F Monitor CPU temperature at 70°C / 158°F.
- ▶▶ 80°C / 176°F Monitor CPU temperature at 80°C / 176°F.
- ▶▶ 90°C / 194°F Monitor CPU temperature at 90°C / 194°F.
- ▶▶ Disabled Disable this function. (Default value)

System/CPU FAN Stop Warning

- ▶▶ Disabled Disable System/CPU fan stop warning function. (Default value)
- ▶▶ Enabled Enable System/CPU fan stop warning function.

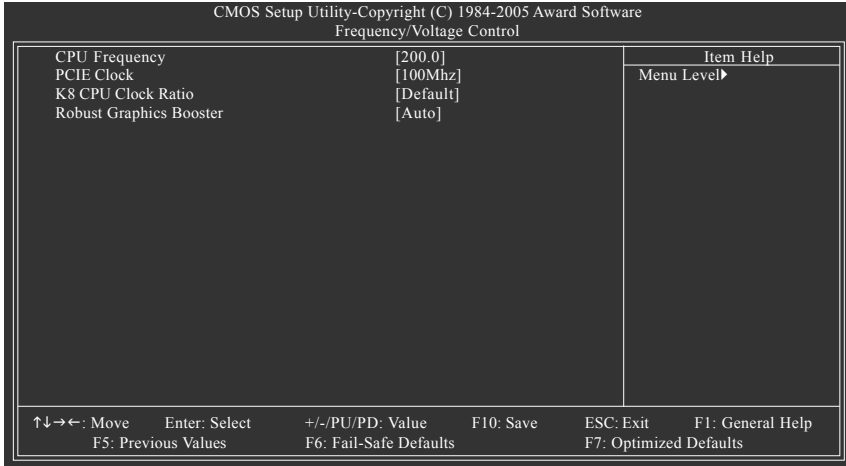
CPU Smart FAN Control (Note)

- ▶▶ Disabled Disable this function. (Default value)
- ▶▶ Enabled When this function is enabled, CPU fan will run at different speed depending on CPU temperature. Users can adjust the fan speed with Easy Tune based on their requirements.

(Note) Whether the CPU Smart FAN Control function is supported will depend on the CPU you install.

For more detailed information please check at the FAQ section on GIGABYTE's website.

2-7 Frequency/Voltage Control



Incorrect using these features may cause your system broken. For power end-user use only.



CPU Frequency

▶▶ 200.0~300.0MHz Set CPU Frequency from 200MHz to 300MHz.



PCIE Clock

▶▶ 100~145MHz Set PCIE Clock from 100MHz to 145MHz.



K8 CPU Clock Ratio

This setup option will automatically assign by CPU detection. (Default value: **Default**)

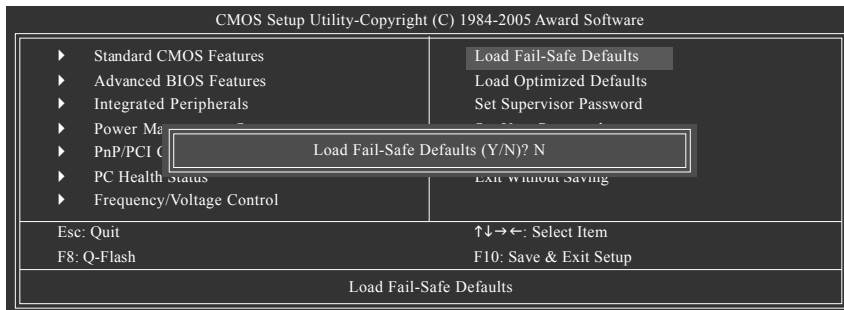


Robust Graphics Booster

Select the options can enhance the VGA graphics card bandwidth to get higher performance.

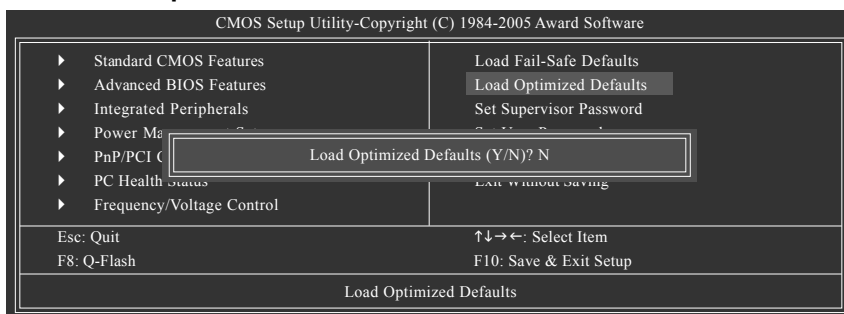
- ▶▶ Auto Set Robust Graphics Booster to Auto. (Default value)
- ▶▶ Fast Set Robust Graphics Booster to Fast.
- ▶▶ Turbo Set Robust Graphics Booster to Turbo.

2-8 Load Fail-Safe Defaults



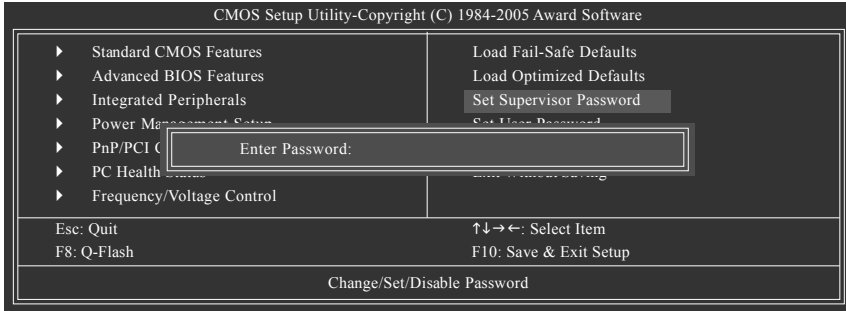
Fail-Safe defaults contain the most appropriate values of the system parameters that allow minimum system performance.

2-9 Load Optimized Defaults



Selecting this field loads the factory defaults for BIOS and Chipset Features which the system automatically detects.

2-10 Set Supervisor/User Password



When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

Type the password, up to eight characters, and press <Enter>. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable password, just press <Enter> when you are prompted to enter password. A message "PASSWORD DISABLED" will appear to confirm the password being disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

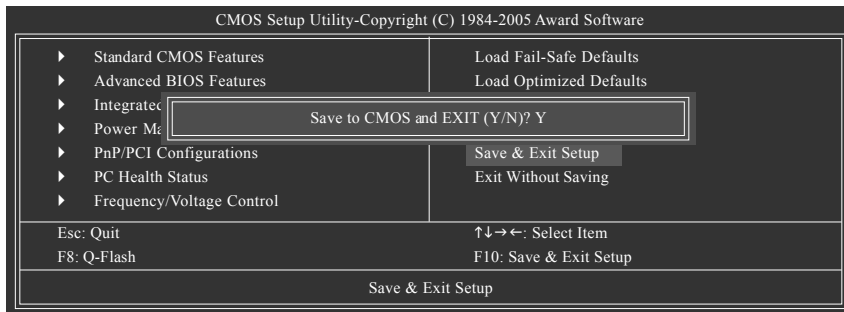
The BIOS Setup program allows you to specify two separate passwords:

SUPERVISOR PASSWORD and a USER PASSWORD. When disabled, anyone may access all BIOS Setup program function. When enabled, the Supervisor password is required for entering the BIOS Setup program and having full configuration fields, the User password is required to access only basic items.

If you select "System" at "Password Check" in Advance BIOS Features Menu, you will be prompted for the password every time the system is rebooted or any time you try to enter Setup Menu.

If you select "Setup" at "Password Check" in Advance BIOS Features Menu, you will be prompted only when you try to enter Setup.

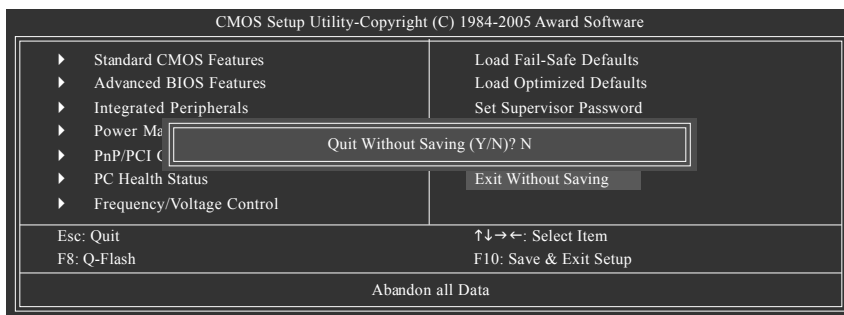
2-11 Save & Exit Setup



Type "Y" will quit the Setup Utility and save the user setup value to RTC CMOS.

Type "N" will return to Setup Utility.

2-12 Exit Without Saving



Type "Y" will quit the Setup Utility without saving to RTC CMOS.

Type "N" will return to Setup Utility.

Chapter 3 Drivers Installation

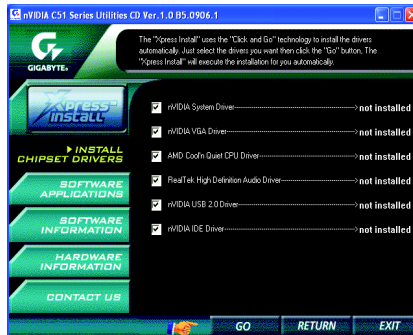


Pictures below are shown in Windows XP.

Insert the driver CD-title that came with your motherboard into your CD-ROM drive, the driver CD-title will auto start and show the installation guide. If not, please double click the CD-ROM device icon in "My computer", and execute the Setup.exe.

3-1 Install Chipset Drivers

After insert the driver CD, "Xpress Install" will scan automatically the system and then list all the drivers that recommended to install. The "Xpress Install" uses the "Click and Go" technology to install the drivers automatically. Just select the drivers you want then click the "GO" button. The "Xpress Install" will execute the installation for you automatically.



Some device drivers will restart your system automatically. After restarting your system the "Xpress Install" will continue to install other drivers.

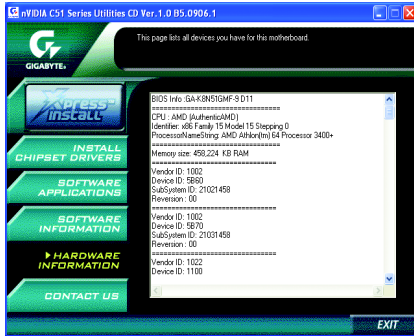
System will reboot automatically after install the drivers, afterward you can install others application.



For USB2.0 driver support under Windows XP operating system, please use Windows Service Pack. After install Windows Service Pack, it will show a question mark "?" in "Universal Serial Bus controller" under "Device Manager". Please remove the question mark and restart the system (System will auto-detect the right USB2.0 driver).

3-4 Hardware Information

This page lists all device you have for this motherboard.



3-5 Contact Us

Please see the last page for details.



Chapter 4 Appendix

4-1 Unique Software Utilities

4-1-1 EasyTune 5 Introduction

EasyTune 5 presents the most convenient Windows based system performance enhancement and manageability utility. Featuring several powerful yet easy to use tools such as 1) Overclocking for enhancing system performance, 2) C.I.A. and M.I.B. for special enhancement for CPU and Memory, 3) Smart-Fan control for managing fan speed control of both CPU cooling fan and North-Bridge Chipset cooling fan, 4) PC health for monitoring system status.^(Note)

User Interface Overview



	Button / Display	Description
1.	Overclocking	Enters the Overclocking setting page
2.	C.I.A./C.I.A.2 and M.I.B./M.I.B.2	Enters the C.I.A./2 and M.I.B./2 setting page
3.	Smart-Fan	Enters the Smart-Fan setting page
4.	PC Health	Enters the PC Health setting page
5.	GO	Confirmation and Execution button
6.	"Easy Mode" & "Advance Mode"	Toggles between Easy and Advance Mode
7.	Display screen	Display panel of CPU frequency
8.	Function display LEDs	Shows the current functions status
9.	GIGABYTE Logo	Log on to GIGABYTE website
10.	Help button	Display EasyTune™ 5 Help file
11.	Exit or Minimize button	Quit or Minimize EasyTune™ 5 software

(Note) EasyTune 5 functions may vary depending on different motherboards.

4-1-2 Xpress Recovery Introduction



What is Xpress Recovery ?

Xpress Recovery is a utility used to back up and restore an OS partition. If the hard drive is not working properly, the user can restore the drive to its original state.



1. Supports FAT16, FAT32, and NTFS formats
2. Must be connected to the IDE1 Master
3. Allows installation of only one OS
4. Must be used with an IDE hard disk supporting HPA
5. The first partition must be set as the boot partition. When the boot partition is backed up, please do not alter its size.
6. Xpress Recovery is recommended when using Ghost to return boot manager to NTFS format.

How to use the Xpress Recovery

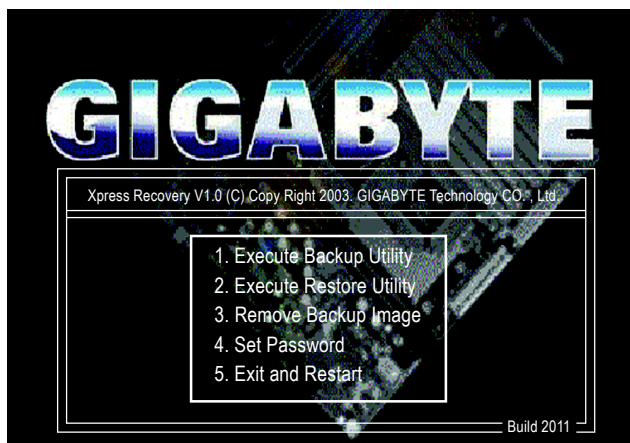
1. Boot from CD-ROM (BMP Mode)

Enter the BIOS menu, select "Advanced BIOS Feature" and set to boot from CD-ROM. Insert the provided driver CD into your CD drive, then save and exit the BIOS menu. Once the computer has restarted, the phrase "Boot from CD:" will appear at the bottom left-hand corner of the screen. When "Boot from CD:" appears, press any key to enter Xpress Recovery.

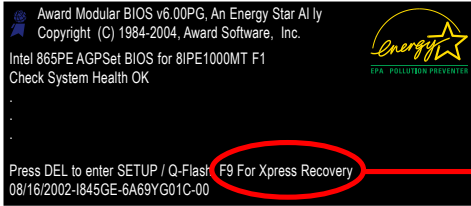
Once you have completed this step, subsequent access to Xpress Recovery can also function by pressing the F9 key during computer power on.



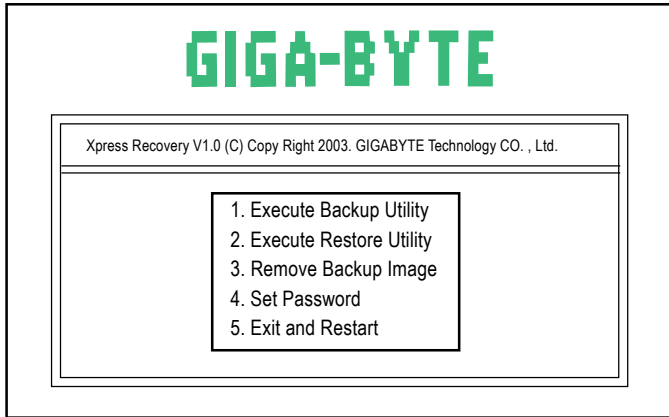
Boot from CD:



2. Press F9 during powering on the computer. (Text Mode)



F9 For Xpress Recovery



1. If you have already entered Xpress Recovery by booting from the CD-ROM, you can enter Xpress Recovery in the future by pressing the F9 key.
2. System storage capacity as well as drive reading/writing speed will affect backup speed.
3. It is recommended that Xpress Recovery be immediately installed after OS and all required driver and software installations are complete.

1. Execute Backup Utility:

Press B to Backup your System or Esc to Exit

The backup utility will automatically scan your system and back up data as a backup image in your hard drive.



Not all systems support access to Xpress Recovery by pressing the F9 key during computer power on. If this is the case, please use the boot from CD-ROM method to enter Xpress Recovery.

2. Execute Restore Utility:

This program will recover your system to factory default.

Press R to restore your system back to factory default or press Esc to exit

Restores backup image to original state.

3. Remove Backup Image:

Remove backup image. Are you sure? (Y/N)

Remove the backup image.

4. Set Password:

Please input a 4-16 character long password (a-z or 0-9) or press Esc to exit

You can set a password to enter Xpress Recovery to protect your hard disk data. Once this is done, password input will be required to enter Xpress Recovery during the next as well as subsequent system restarts. If you wish to remove the need for password entry, please select "Set Password" and under "New Password/Confirm Password", make sure there is no entry and then press "Enter" to remove password requirement.

5. Exit and Restart:

Exit and restart your computer.

4-1-3 Flash BIOS Method Introduction



Method 1 : Q-Flash™ Utility

Q-Flash™ is a BIOS flash utility embedded in Flash ROM. With this utility, users only have to stay in the BIOS menu when they want to update BIOS. Q-Flash™ allows users to flash BIOS without any utility in DOS or

Windows. Using Q-Flash™ indicating no more fooling around with any complicated instructions and operating system since it is in the BIOS menu.



Please note that because updating BIOS has potential risk, please do it with caution!! We are sorry that Gigabyte Technology Co., Ltd is not responsible for damages of system because of incorrect manipulation of updating BIOS to avoid any claims from end-users.

Before You Begin:

Before you start updating BIOS with the Q-Flash™ utility, please follow the steps below first.

1. Download the latest BIOS for your motherboard from Gigabyte's website.
2. Extract the BIOS file downloaded and save the BIOS file (the one with model name.Fxx. For example, 8KNXP.U.Fba) to a floppy disk.
3. Reboot your PC and press **Del** to enter BIOS menu.

The BIOS upgrading guides below are separated into two parts.

If your motherboard has dual-BIOS, please refer to **Part One**.

If your motherboard has single-BIOS, please refer to **Part Two**.

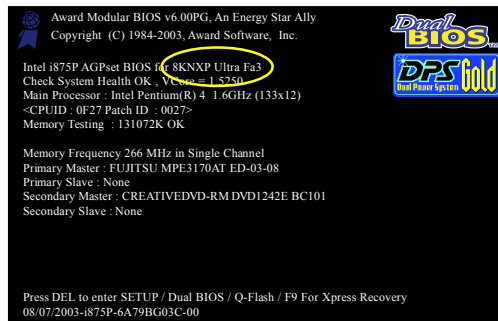
Part One:

Updating BIOS with Q-Flash™ Utility on Dual BIOS Motherboards.

Some of Gigabyte motherboards are equipped with dual BIOS. In the BIOS menu of the motherboards supporting Q-Flash and Dual BIOS, the Q-Flash utility and Dual BIOS utility are combined in the same screen. This section only deals with how to use Q-Flash utility.

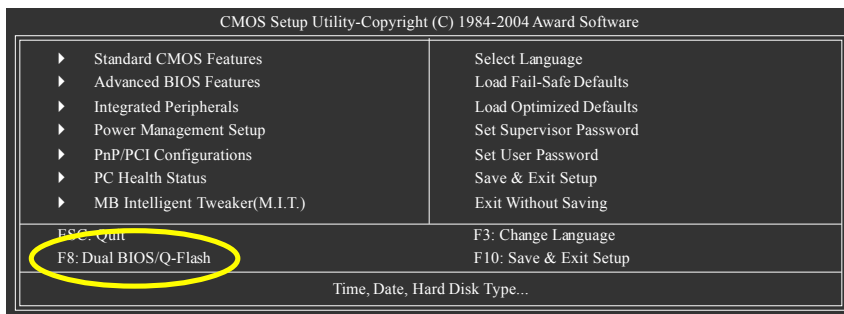
In the following sections, we take GA-8KNXP Ultra as the example to guide you how to flash BIOS from an older version to the latest version. For example, from Fa3 to Fba.

The BIOS file is Fa3
before updating



Entering the Q-Flash™ utility:

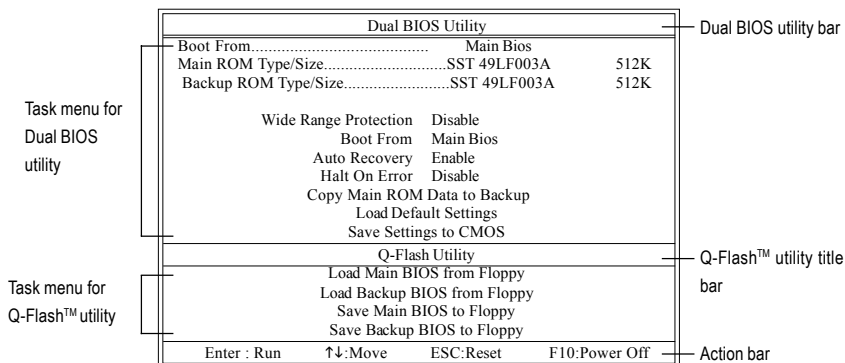
Step 1: To use Q-Flash utility, you must press **Del** in the boot screen to enter BIOS menu.



Step 2: Press **F8** button on your keyboard and then **Y** button to enter the Dual BIOS/Q-Flash utility.

Exploring the Q-Flash™ / Dual BIOS utility screen

The Q-Flash / Dual BIOS utility screen consists of the following key components.



Task menu for Dual BIOS utility:

Contains the names of eight tasks and two item showing information about the BIOS ROM type. Blocking a task and pressing Enter key on your keyboard to enable execution of the task.

Task menu for Q-Flash utility:

Contains the names of four tasks. Blocking a task and pressing Enter key on your keyboard to enable execution of the task.

Action bar:

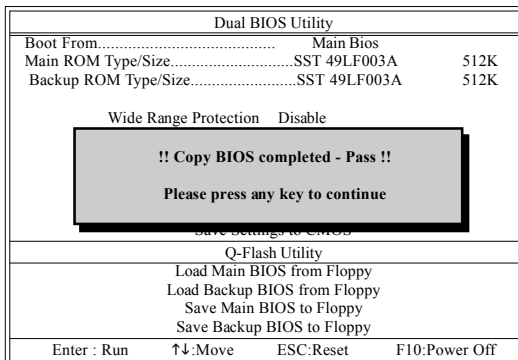
Contains the names of four actions needed to operate the Q-Flash/Dual BIOS utility. Pressing the buttons mentioned on your keyboards to perform these actions.

- Press Y button on your keyboard after you are sure to update BIOS. Then it will begin to update BIOS. The progress of updating BIOS will be displayed.



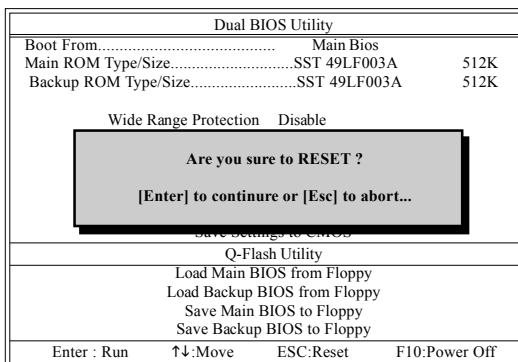
Please do not take out the floppy disk when it begins flashing BIOS.

- Press any keys to return to the Q-Flash menu when the BIOS updating procedure is completed.



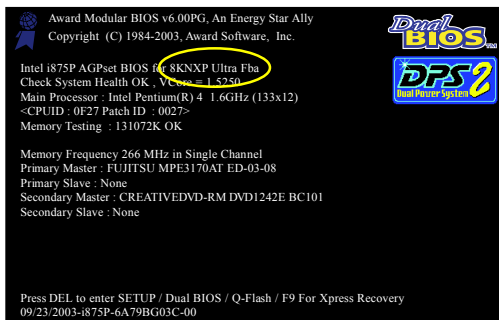
You can repeat Step 1 to 4 to flash the backup BIOS, too.

- Press Esc and then Y button to exit the Q-Flash utility. The computer will restart automatically after you exit Q-Flash.

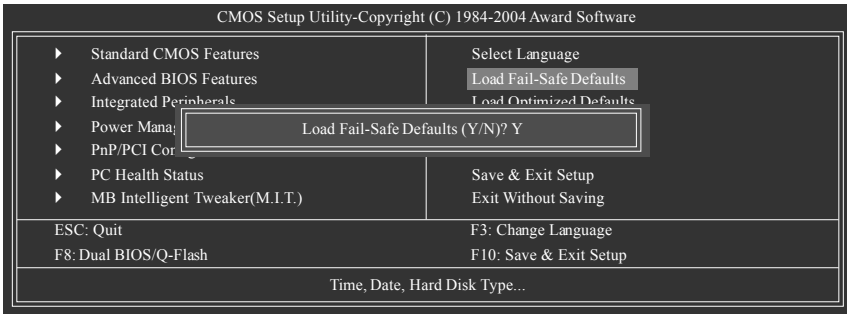


After system reboots, you may find the BIOS version on your boot screen becomes the one you flashed.

The BIOS file becomes Fba after updating.

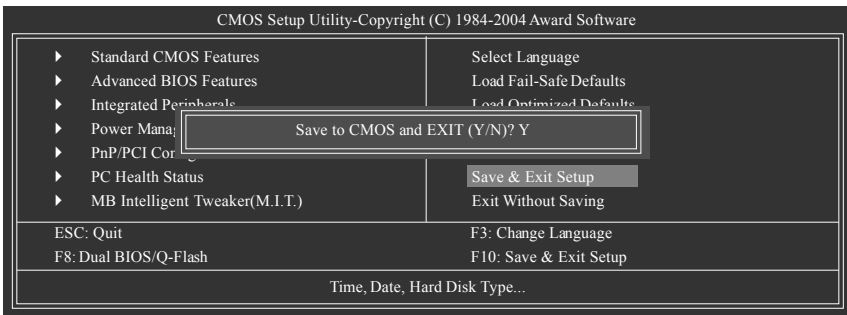


6. Press **Del** to enter BIOS menu after system reboots. When you are in BIOS menu, move to **Load Fail-Safe Defaults** item and press **Enter** to load BIOS Fail-Safe Defaults. Normally the system redetects all devices after BIOS has been upgraded. Therefore, we highly recommend reloading the BIOS defaults after BIOS has been upgraded.



Press **Y** on your keyboard to load defaults.

7. Select **Save & Exit Setup** item to save the settings to CMOS and exit the BIOS menu. System will reboot after you exit the BIOS menu. The procedure is completed.

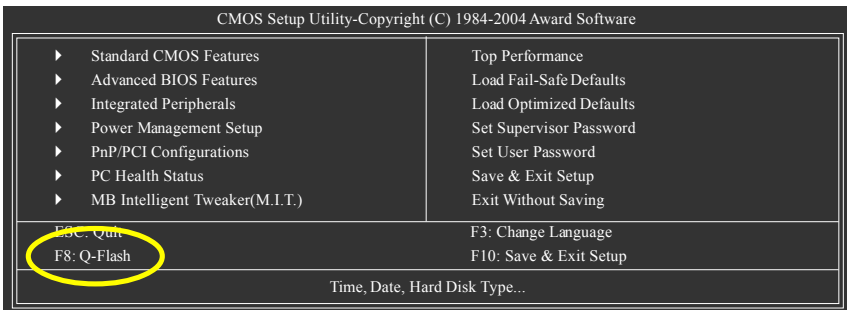


Press **Y** on your keyboard to save and exit.

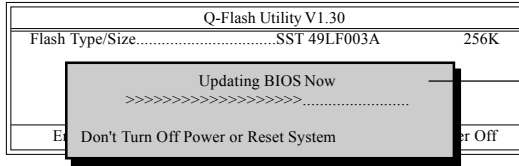
Part Two:

Updating BIOS with Q-Flash™ Utility on Single-BIOS Motherboards.

This part guides users of single-BIOS motherboards how to update BIOS using the Q-Flash™ utility.

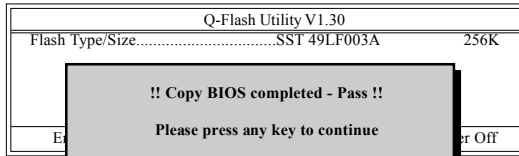


- Press Y button on your keyboard after you are sure to update BIOS.
Then it will begin to update BIOS. The progress of updating BIOS will be shown at the same time.

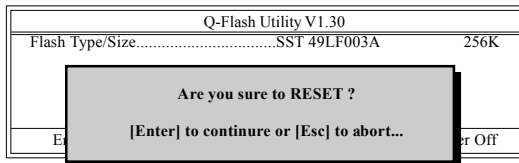


Do not turn off power or reset your system at this stage!!

- Press any keys to return to the Q-Flash menu when the BIOS updating procedure is completed.

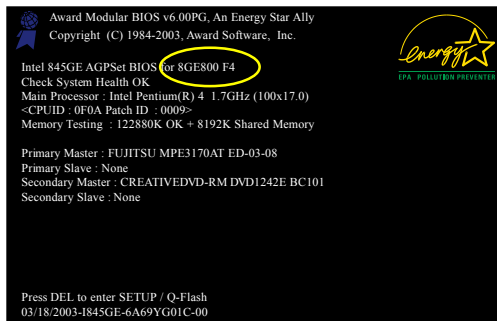


- Press Esc and then Y button to exit the Q-Flash utility. The computer will restart automatically after you exit Q-Flash.



After system reboots, you may find the BIOS version on your boot screen becomes the one you flashed.

The BIOS file becomes F4 after updating



- Press Del to enter BIOS menu after system reboots and "Load BIOS Fail-Safe Defaults". See how to Load BIOS Fail-Safe Defaults, please kindly refer to Step 6 to 7 in **Part One**.

Congratulation!! You have updated BIOS successfully!!



Method 2 : @BIOS™ Utility

If you do not have a DOS startup disk, we recommend that you use the new @BIOS utility. @BIOS allows users to update their BIOS under Windows. Just select the desired @BIOS server to download the latest version of BIOS.

Fig 1. Installing the @BIOS utility

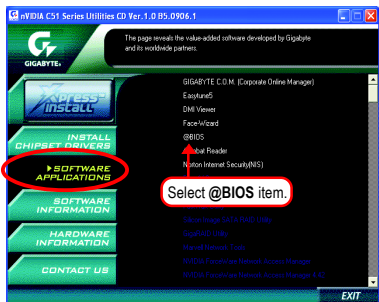


Fig 2. Installation complete and run @BIOS

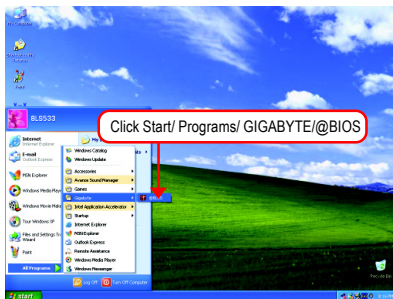


Fig 3. The @BIOS utility

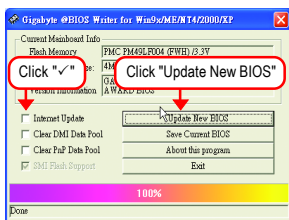
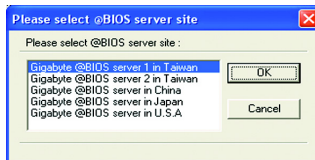


Fig 4. Select the desired @BIOS server



1. Methods and steps:

I. Update BIOS through Internet:

- a. Click "Internet Update" icon.
- b. Click "Update New BIOS" icon.
- c. Select @BIOS™ sever.
- d. Select the exact model name on your motherboard.
- e. System will automatically download and update the BIOS.

II. Update BIOS NOT through Internet:

- a. Do not click "Internet Update" icon.
- b. Click "Update New BIOS".
- c. Please select "All Files" in dialog box while opening the old file.
- d. Please search for BIOS unzip file, downloading from internet or any other methods (such as: 51GMF9.D2).
- e. Complete update process following the instruction.

III. Save BIOS:

In the very beginning, there is "Save Current BIOS" icon shown in dialog box. It means to save the current BIOS version.

IV. Check out supported motherboard and Flash ROM:

In the very beginning, there is "About this program" icon shown in dialog box. It can help you check out which kind of motherboard and which brand of Flash ROM are supported.

2. Note:

- I. In method I, if it shows two or more motherboard's model names to be selected, please make sure your motherboard's model name again. Selecting wrong model name will cause the system unbooted.
- II. In method II, be sure that motherboard's model name in BIOS unzip file are the same as your motherboard's. Otherwise, your system won't boot.
- III. In method I, if the BIOS file you need cannot be found in @BIOS™ server, please go onto Gigabyte's website for downloading and updating it according to method II.
- IV. Please note that any interruption during updating will cause system unbooted.
- V. Do not use @BIOS and C.O.M. (Corporate Online Management) at the same time.

4-1-4 Serial ATA BIOS Setting Utility Introduction

RAID Levels

RAID (Redundant Array of Independent Disks) is a method of combining two hard disk drives into one logical unit. The advantage of an Array is to provide better performance or data fault tolerance. Fault tolerance is achieved through data redundant operation, where if one drives fails, a mirrored copy of the data can be found on another drive. This can prevent data loss if the operating system fails or hangs. The individual disk drives in an array are called members. The configuration information of each member is recorded in the reserved sector that identifies the drive as a member. All disk members in a formed disk array are recognized as a single physical drive to the operating system.

Hard disk drives can be combined together through a few different methods. The different methods are referred to as different RAID levels. Different RAID levels represent different performance levels, security levels and implementation costs. The RAID levels which the nVIDIA® nForce 430 chipset supports are RAID 0, RAID 1, RAID 0+1, JBOD and RAID 5.

RAID 0 (Striping)

RAID 0 reads and writes sectors of data interleaved between multiple drives. If any disk member fails, it affects the entire array. The disk array data capacity is equal to the number of drive members times the capacity of the smallest member. RAID 0 does not support fault tolerance.

RAID 1 (Mirroring)

RAID 1 writes duplicate data onto a pair of drives and reads both sets of data in parallel. If one of the mirrored drives suffers a mechanical failure or does not respond, the remaining drive will continue to function. Due to redundancy, the drive capacity of the array is the capacity of the smallest drive. Under a RAID 1 setup, an extra drive called the spare drive can be attached. Such a drive will be activated to replace a failed drive that is part of a mirrored array. Due to the fault tolerance, if any RAID 1 drive fails, data access will not be affected as long as there are other working drives in the array.

RAID 0+1 (Striping + Mirroring)

RAID 0+1 combines the performance of data striping (RAID 0) and the fault tolerance of disk mirroring (RAID 1). Data is striped across multiple drives and duplicated on another set of drives.

JBOD (Spanning)

A spanning disk array is equal to the sum of the all drives when the drives used are having different capacities. Spanning stores data onto a drive until it is full, then proceeds to store files onto the next drive in the array. When any disk member fails, the failure affects the entire array. JBOD is not really a RAID and does not support fault tolerance.

RAID 5 (Striping with Parity)

RAID 5 provides good fault tolerance and allows for overlapped I/O operations. Under a RAID 5 setup, data and parity information are equally distributed to each disk member in the array. If any one of the drives fails, the remaining drive will continue to function. After replacing the failed drive, you can rebuild the data from the remaining data and parity. Only one drive can be safely crash without any data loss.

Please follow the steps below to construct a complete RAID array:

- 1) Have ready your hard drives for RAID construction.
Note: To achieve best performance, it is recommended that the hard drives used are of similar make and storage capacity.
- 2) Please attach the hard drive connectors to their appropriate location on the motherboard ie. IDE, SCSI, or SATA.
- 3) Enter the motherboard BIOS and locate RAID setup (Please refer to the section on Integrated Peripherals).
- 4) Enter RAID setup in the BIOS and select the RAID type (For instance, enter F10 to select NVIDIA RAID; Ctrl + S to select Silicon Image).
- 5) Complete driver installation.
- 6) Complete RAID utility installation.

More information on steps 4 and 5 is provided. (For more detailed setup information, please visit "Support\ Motherboard\ Technology Guide section" on our website at <http://www.gigabyte.com.tw> to read or download the information you need.)

Configuring the Nvidia RAID BIOS

The NVIDIA RAID BIOS setup lets you choose the RAID array type and which hard drives you want to make part of the array.

Entering the RAID BIOS Setup

1. After rebooting your computer, wait until you see the RAID software prompting you to press **F10**. The RAID prompt appears as part of the system POST and boot process prior to loading the OS. You have a few seconds to press **F10** before the window disappears.

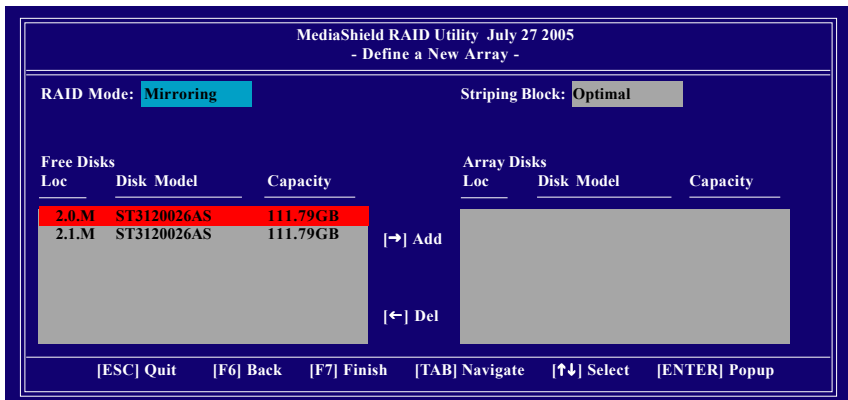
```
MediaShield IDE ROM BIOS 6.21
Copyright (C) 2005 NVIDIA Corp.

Detecting array ...

Press F10 to enter RAID setup utility ...
```

Press **F10**.

The NVIDIA RAID Utility - **Define a New Array** window appears (as Figure below).



Using the "Define a New Array" Window

If necessary, press the tab key to move from field to field until the appropriate field is highlighted.

Selecting the RAID Mode

By default, this is set to Striping. To change to a different RAID mode, press the down arrow key until the mode that you want appears in the RAID Mode box - either Mirroring, Striping, Spanning, Stripe Mirroring or RAID 5.

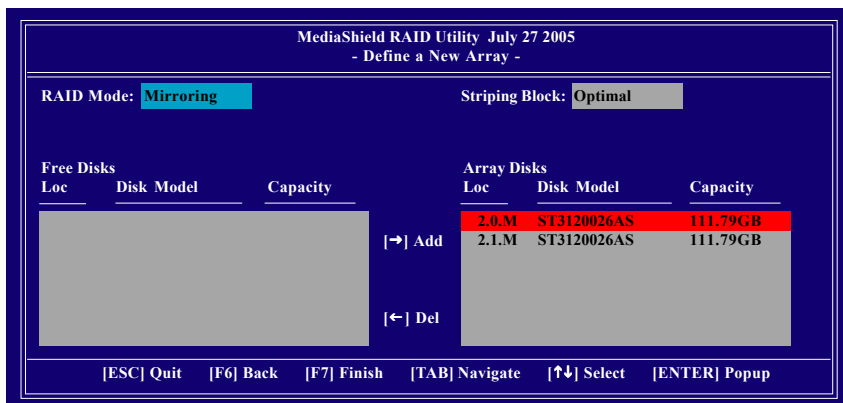
Selecting the Striping Block Size

Striping block size is given in kilobytes, and affects how data is arranged on the disk. It is recommended to leave this value at the default Optimal, which is 64KB, but the values can be between 4 KB and 128 KB.

Assigning the Disks

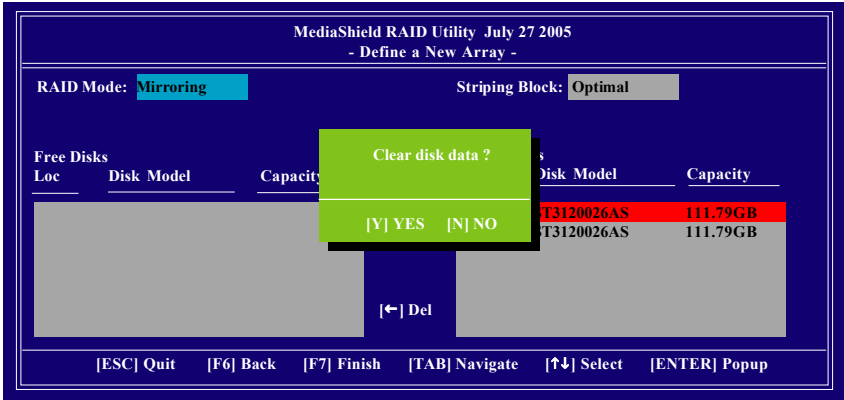
The disks that you enabled from the RAID Config BIOS setup page appear in the Free Disks block. These are the drives that are available for use as RAID array disks. To designate a free disk to be used as a RAID array disk,

1. Tab to the Free Disks section. The first disk in the list is selected.
2. Move it from the Free Disks block to the Array Disks block by pressing the right arrow key (→). The first disk in the list is moved, and the next disk in the list is selected and ready to be moved.
3. Continue pressing the right-arrow key (→) until all the disks that you want to use as RAID array disks appear in the Array Disks block.



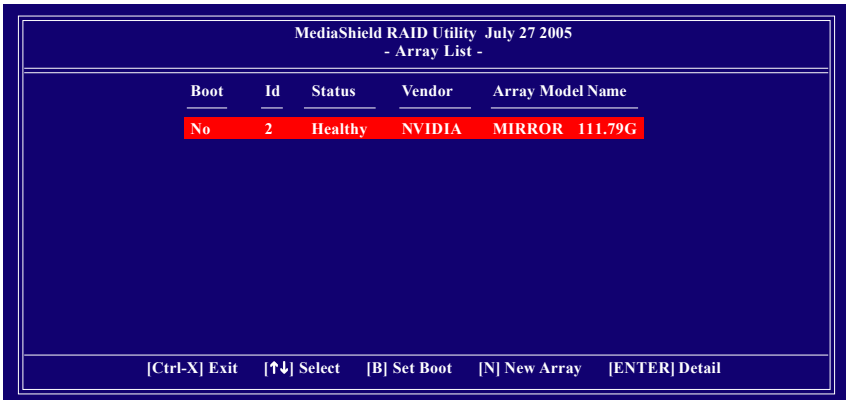
Completing the RAID BIOS Setup

After assigning your RAID array disks, press F7. The **Clear disk data** prompt appears.



Press **Y** if you want to wipe out all the data from the RAID array, otherwise press **N**. You must choose **Yes** if the drives were previously used as RAID drives. The **Array List** window appears, where you can review the RAID arrays that you have set up.

You can select a disk array as boot device if you want to boot operating system from an array. Use the arrow keys to select the array, then press **B** to specify the array as bootable.



Press **Enter** to view and verify details. The **Array Detail** screen appears.

The Array Detail screen shows various information about the array that you selected, such as Striping Block used, RAID Mode, Striping Width, Disk Model Name, and disk capacity.

Array 2 : NVIDIA MIRROR 111.79G - Array Detail -					
RAID Mode: Mirroring			Striping Block: 64K		
Striping Width : 1					
Adapt	Channel	M/S	Index	Disk Model	Capacity
1	0	Master	0	ST3120026AS	111.79GB
1	1	Master	1	ST3120026AS	111.79GB
[R] Rebuild [D] Delete [C] Clear Disk [ENTER] Return					

If you want to mark this disk as empty and wipe out all its contents, press **C**.

At the prompt, press **Y** to wipe out all the data, otherwise press **N**.

Press **Enter** again to go back to the previous screen and then press **Ctrl + X** to exit the RAID setup.

Now that the RAID setup has been configured from the RAID BIOS, the next step is to configure and load drivers under Windows.

Installing the RAID drivers

To install operating system onto a serial ATA hard disk successfully, you need to install the SATA controller driver during OS installation. Without the driver, the hard disk may not be recognized during the Windows setup process. First of all, copy the driver for the SATA controller from the motherboard driver CD-ROM to a floppy disk. See the instructions below about how to copy the driver in MS-DOS mode^(Note). Prepare a startup disk that has CD-ROM support and a blank formatted floppy disk.

Step 1: Insert the prepared startup disk and motherboard driver CD-ROM in your system. Boot from the startup disk. Once at the A:\> prompt, change to the CD-ROM drive (example: D:\>). At the D:\> prompt, type the following two commands. Press ENTER after each command (Fig.1):

```
cd bootdrv
menu
```

Step 2: When the controller menu (Fig.2) appears, remove the startup disk and insert the blank formatted disk. Select the controller driver by pressing the corresponding letter from the menu. Your system will then automatically zip and transfer this driver file to the floppy disk. Press 0 to exit when finished.

```
D:\DOS2K  1 10-08-02  7:51p
DIRBQML  DLL  94,208 06-15-04  1:15p
DRIVERS  <DIR>  11-23-04  9:24p
HISTORY  TXT  7,903 05-24-04  1:56p
HMOBDR  DLL  53,240 08-21-02 10:11a
IB       EDI  21,077
MANUAL   <DIR>  12-01-04 11:21a
METMORR <DIR>  11-23-04  9:24p
MS       <DIR>  11-23-04  9:24p
OCMSETUP INF  38,057 10-08-02  7:51p
OSMB     <DIR>  11-23-04  9:24p
PROSETII <DIR>  11-23-04  9:27p
SERAME   TXT  4,554 12-01-04  2:09p
SETUP    EXE  421,888 11-25-04  3:32p
TESTW    EXE  196,080 08-09-04  1:44p
TIP      HTF  2,439 09-10-04 10:01a
UTILITY  <DIR>  11-23-04  9:27p
VERFILE  TIC  13 03-26-03  1:45p
XMC      TXT  7,828 11-24-04  1:51p
Total file(s)  860,353 bytes
Total free(s)  11 411
D:\>cd bootdrv
D:\BOOTDRV>menu
```

Fig.1

```
1)Promise 2022C RAID
2)Promise 2027C RAID
3)Promise 2026C RAID
4)Promise 2026C RAID(CXP)
5)Promise 2026C RAID
6)Promise 2026C RAID(CXP)
7)Promise 2027C RAID
8)Promise 2027C RAID
9)313114 RAID
0)313114 RAID
C)01D1A CR04 Series Raid(CXP)
D)01D1A CR04 Parallel Raid(CXP)
E)01D1A CR04 Series Raid(C2K)
F)01D1A CR04 Parallel Raid(C2K)
G)01D1A C19 Series Raid(CXP)
H)01D1A C19 Series Raid(C2K)
I)01D1A C51 Series Raid(CXP)
J)01D1A C51 Series Raid(C2K)
0)exit
```

Fig.2

Step 3: After completing the steps, boot from the Windows installation disk to install the RAID drivers. Press **F6** as soon as you see the "Press F6 if you need to install a third party SCSI or RAID driver" message, then supply serial ATA controller driver by this floppy disk. Follow the on-screen instructions to complete the installation.

(Each time you add a new hard drive to a RAID array, the RAID driver will have to be installed under Windows once for that hard drive. After that, the driver will not have to be installed.)



(Note): For users without a startup disk.

Use an alternative system and insert the GIGABYTE motherboard driver CD-ROM. From the CD-ROM drive (example: D:\) double click the **MENU.exe** file in the **BootDrv** folder. A command prompt window will open similar to that in Fig. 2.



4-1-5 2- / 4- / 6- / 8- Channel Audio Function Introduction

The default speaker settings for the 6 audio jacks are as shown in the picture to the right. The jack retasking capability supported by HD Audio allows users to change the function for each audio jack by the audio software provided. For example, if a rear speaker is plugged into the center/subwoofer speaker out jack, you can change the center/subwoofer speaker out jack to function as a rear speaker out jack via the audio software. Please follow the steps to install the function. (Following pictures are in Windows XP)



Note that if you wish to connect a microphone, you **MUST** connect it to the default Mic In jack for the microphone to work correctly.

HD Audio

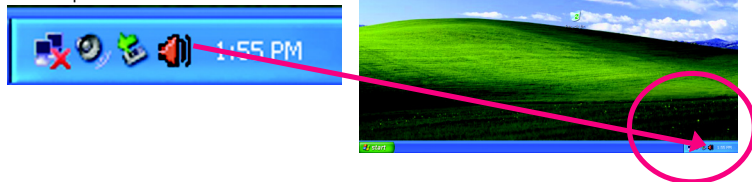
With multiple built-in high quality digital-to-analog converters (DACs) that support audio output at up to 192 kHz/24-bit quality and multi-streaming applications, HD Audio is able to handle multiple audio streams (in and out) simultaneously. Multi-channel audio experiences have become a reality so you can, for instance, listen to MP3 music, have an Internet chat, make a telephone call over the Internet, and etc. all at the same time.

Stereo Speakers Connection and Settings:

We recommend that you use the speaker with amplifier to acquire the best sound effect if the stereo output is applied.

STEP 1 :

After installation of the audio driver, you should find an Audio Manager icon in your system tray (you can also find the icon in Control Panel). Double-click the icon to open the Audio Control Panel.



STEP 2:

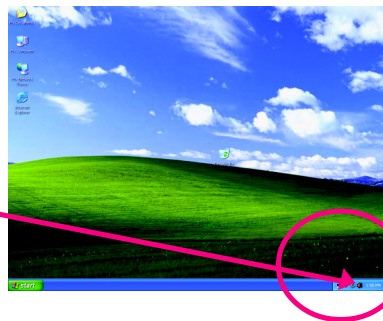
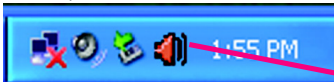
In the Audio Control Panel, click the **Audio I/O** tab. In the upper left list, click **2CH Speaker**.

**STEP 3:**

After a speaker or headphone is plugged into the rear Line Out jack, a small window will pop up and ask you what type of equipment is connected. Choose **Headphone** or **Line Out** depending on the device connected and click **OK**. The 2-channel audio setup is completed.

**4 Channel Audio Setup****STEP 1 :**

After installation of the audio driver, you should find an Audio Manager icon in your system tray (you can also find the icon in Control Panel). Double-click the icon to open the Audio Control Panel.

**STEP 2:**

In the Audio Control Panel, click the **Audio I/O** tab. In the upper left list, click **4CH Speaker**.

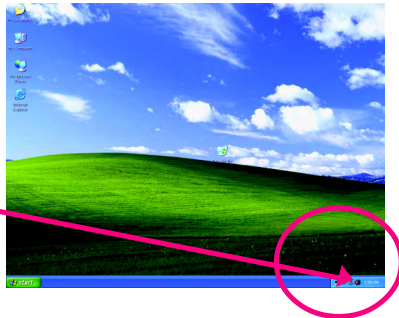
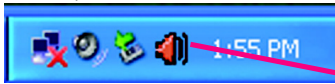


STEP 3:

After plugging in 4-channel speakers to the rear speaker jacks, a small window will pop up and ask you what type of equipment is connected. Choose a device depending on the type of speaker connected (4-channel audio consists of Front Speaker Out (Line Out) and Rear Speaker Out) and then click **OK**. The 4-channel audio setup is completed.

**6 Channel Audio Setup****STEP 1 :**

After installation of the audio driver, you should find an Audio Manager icon in your system tray (you can also find the icon in Control Panel). Double-click the icon to open the Audio Control Panel.

**STEP 2:**

In the Audio Control Panel, click the **Audio I/O** tab. In the upper left list, click **6CH Speaker**.


**STEP 3:**

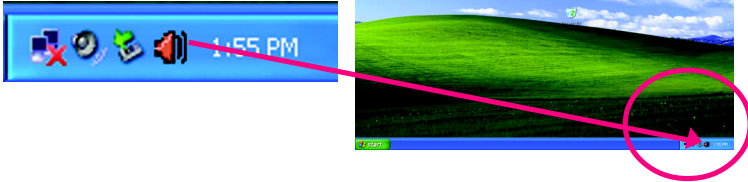
After plugging in 6-channel speakers to the rear speaker jacks, a small window will pop up and ask you what type of equipment is connected. Choose a device depending on the type of speaker connected (6-channel audio consists of Front Speaker Out (Line Out), Rear Speaker Out, and Center/Subwoofer Speaker Out) then click **OK**. The 6-channel audio setup is completed.



8 Channel Audio Setup

STEP 1 :

After installation of the audio driver, you should find an Audio Manager  icon in your system tray (you can also find the icon in Control Panel). Double-click the icon to open the Audio Control Panel.



STEP 2:

In the Audio Control Panel, click the **Audio I/O** tab. In the upper left list, click **8CH Speaker**.



STEP 3:

After plugging in 8-channel speakers to the rear speaker jacks, a small window will pop up and ask you what type of equipment is connected. Choose a device depending on the type of speaker connected (8-channel audio consists of Front Speaker Out (Line Out), Rear Speaker Out, Center/Subwoofer Speaker Out, and Side Speaker Out) then click **OK**. The 8-channel audio setup is completed.



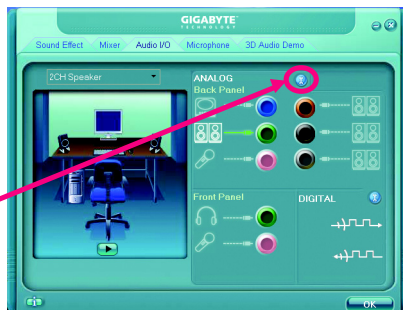
Sound Effect Configuration:

At the **Sound Effect** menu, users can adjust sound option settings as desired.



AC'97 Audio Configuration:

To enable the front panel audio connector to support AC97 Audio mode, go to the Audio Control Panel and click the **Audio I/O** tab. In the **ANALOG** area, click the **Tool** icon and then select the **Disable front panel jack detection** check box. This action completes the AC'97 Audio configuration.



4-2 Troubleshooting

Below is a collection of general asked questions. To check general asked questions based on a specific motherboard model, please log on to www.gigabyte.com.tw

Question 1: I cannot see some options that were included in previous BIOS after updating BIOS. Why?
 Answer: Some advanced options are hidden in new BIOS version. Please press Ctrl and F1 keys after entering BIOS menu and you will be able to see these options.

Questions 2: Why is the light of my keyboard/optical mouse still on after computer shuts down?
 Answer: In some boards, a small amount of electricity is kept on standby after computer shuts down and that's why the light is still on.

Question 3: How do I clear CMOS?
 Answer: If your board has a Clear CMOS jumper, please refer to the Clear CMOS steps in the manual. If your board doesn't have such jumper, you can take off the on-board battery to leak voltage to clear CMOS. Please refer to the steps below:

Steps:

1. Turn off power.
2. Disconnect the power cord from MB.
3. Take out the battery gently and put it aside for about 10 minutes (Or you can use a metal object to connect the positive and negative pins in the battery holder to makethem short for one minute).
4. Re-insert the battery to the battery holder.
5. Connect power cord to MB again and turn on power.
6. Press Del to enter BIOS and load Fail-Safe Defaults(or load Optimized Defaults).
7. Save changes and reboot the system.

Question 4: Why do I still get a weak sound after turning up the speaker to the maximum volume?
 Answer: Please make sure the speaker you are using is equipped with an internal amplifier. If not, please change another speaker with power/amplifier and try again later.

Question 5: Sometimes I hear different continuous beeps from computer after system boots up. What do these beeps usually stand for?

Answer: The beep codes below may help you identify the possible computer problems. However, they are only for reference purposes. The situations might differ from case to case.

→ AMI BIOS Beep Codes

*Computer gives 1 short beep when system boots successfully.

*Except for beep code 8, these codes are always fatal.

- 1 beep Refresh failure
- 2 beeps Parity error
- 3 beeps Base 64K memory failure
- 4 beeps Timer not operational
- 5 beeps Processor error
- 6 beeps 8042 - gate A20 failure
- 7 beeps Processor exception interrupt error
- 8 beeps Display memory read/write failure
- 9 beeps ROM checksum error
- 10 beeps CMOS shutdown register read/write error
- 11 beeps Cache memory bad

→ AWARD BIOS Beep Codes

- 1 short: System boots successfully
- 2 short: CMOS setting error
- 1 long 1 short: DRAM or M/B error
- 1 long 2 short: Monitor or display card error
- 1 long 3 short: Keyboard error
- 1 long 9 short: BIOS ROM error
- Continuous long beeps: DRAM error
- Continuous short beeps: Power error



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